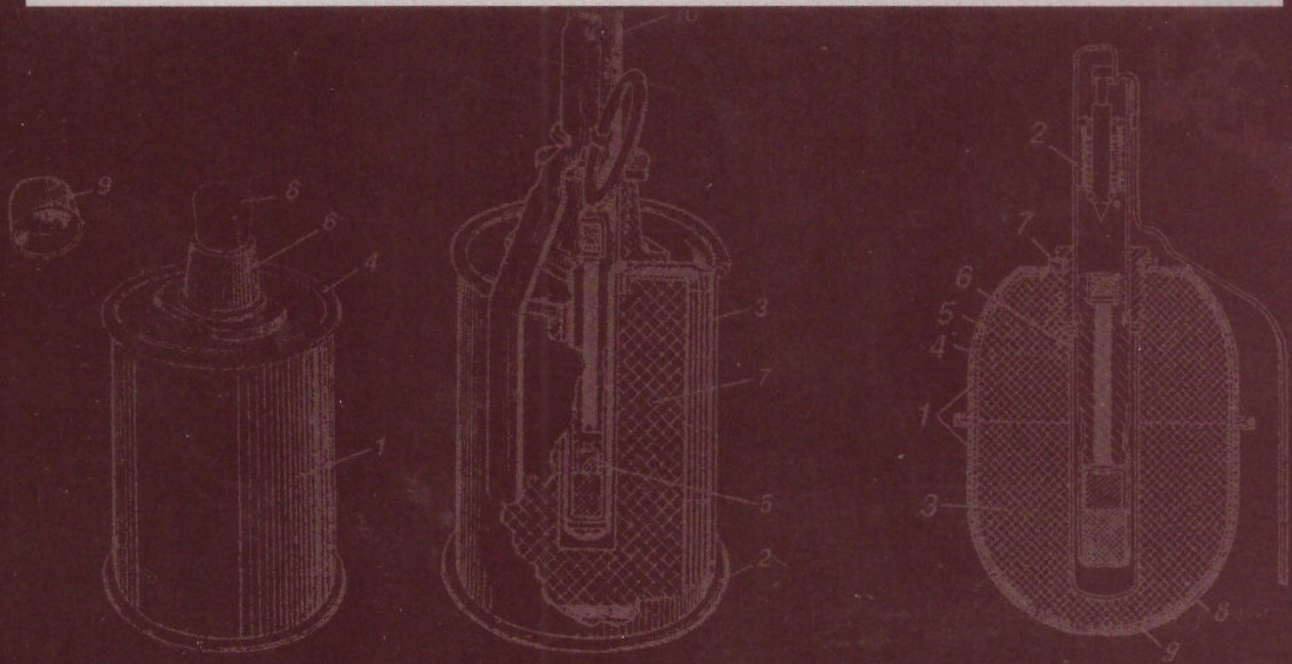




THE OFFICIAL SOVIET ARMY HAND GRENADE M A N U A L

Originally Published by the People's Commissariat of
Defense and the Ministry of Defense of the USSR

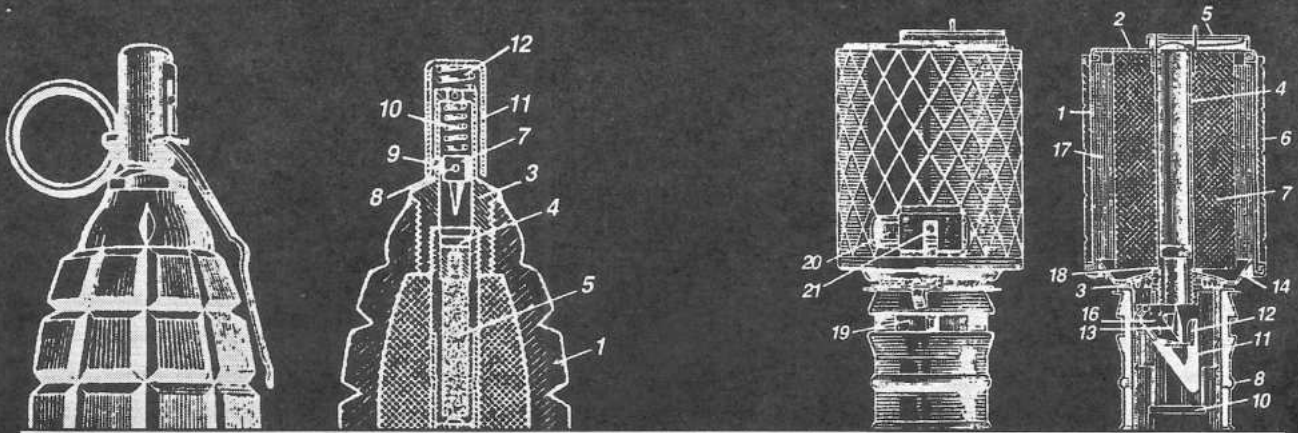
*With Original Illustrations and Translation by
Maj. James F. Gebhardt, U.S. Army (Ret.)*



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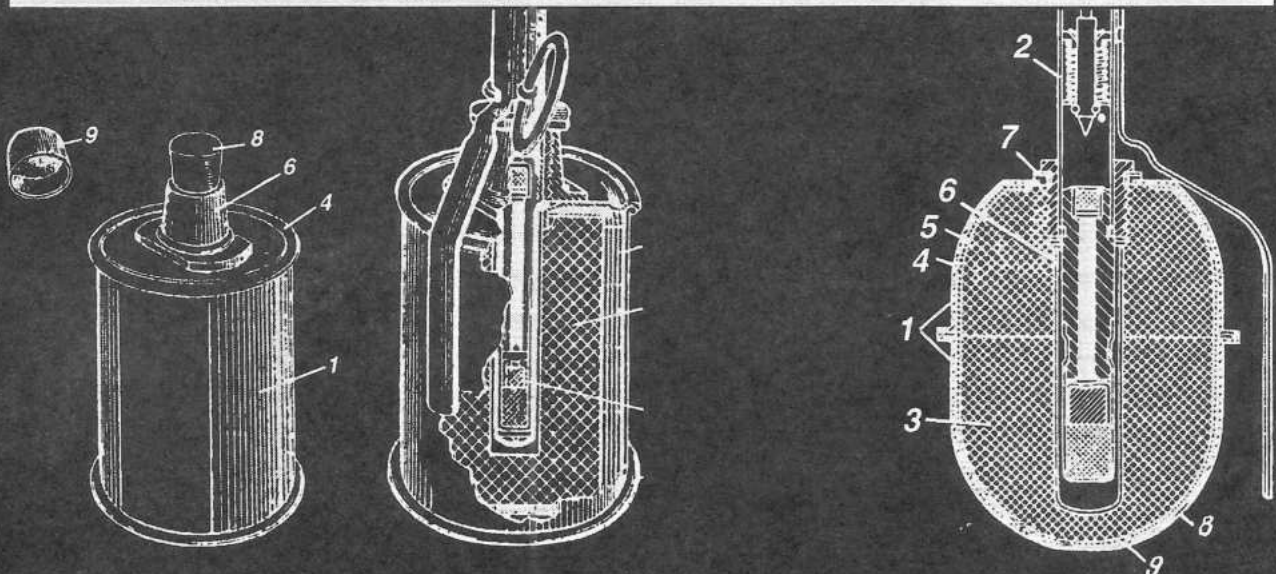
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Scott Blazey, Editor

PALADIN PRESS • BOULDER, COLORADO



Also translated by Maj. James F. Gebhardt:

The Official SKS Manual

The Official Soviet 7.62mm Handgun Manual

The Official Soviet Army Hand Grenade Manual

English translation by James F. Gebhardt

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"Instructions for Preparation and Use of Fragmentation and Antitank
Hand Grenades and Molotov Cocktails" originally published in the
Soviet Union under the title *Nastavleniye po strelkovomu delu (NSD-42): Ruchnyye granaty, protivotankovaya ruchnaya granata i butylki s goryuchey smesyu* under the supervision of Col. V.V. Glazatov,
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1944.

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Kozlov, editor I.D. Gulevich, technical editor Ye. K. Konovalova,
proofreader G.I. Chernakova, by the Military Press of the Ministry of
Defense of the USSR, 1974.

About this manual

This manual is an amalgamation of two Soviet Army manuals concerning hand grenades, the first published by the People's Commissariat of Defense in 1944, and the second by the Ministry of Defense in 1974.

The 1944 manual covers the hand grenades and Molotov cocktails that were in the Red Army inventory at the time the manual was written. These included the Type-1933 hand grenade (RGD-33), Type-1942 hand grenade (RG-42), F-1 hand grenade, Type-1942 antitank hand grenade (RPG-42), and the Molotov cocktail with two different ignition systems. The 1944 manual is long on technical descriptions and short on instructions for tactical employment of these weapons.

The 1974 manual contains technical descriptions of the hand grenades in the inventory of the Soviet Army at the time. These included the RGD-5, RG-42, and F-1 fragmentation grenades, and RKG-3 antitank grenade. In addition, a sizable portion of the 1974 manual is devoted to tactical employment of hand grenades and the use of training grenades. The principle overlap between the two manuals is the brief descriptions of the RG-42 and F-1 fragmentation grenades contained in the 1974 manual.

The resulting expanded, translated manual thus contains technical descriptions of all hand grenades used by the armed forces of the USSR from the mid-1930s to the mid-1980s.

About the translator

James F. Gebhardt is a retired U.S. Army officer who served as an enlisted infantryman (1966-69), armor officer (1974-83), and Soviet foreign area officer (1984-91). Gebhardt studied the Russian language at the University of Idaho at Moscow (BA, Political Science, 1974), the University of Washington at Seattle (MA, Soviet History, 1976), Defense Language Institute at Presidio of Monterey, California (Diploma, 1984), and the U.S. Army Russian Institute at Garmisch, Federal Republic of Germany (Diploma, 1986). He has performed military duty in the Soviet Union, and has escorted numerous Soviet scientific, military, and diplomatic personnel on U.S. military installations in the United States.

Mr. Gebhardt is the author or translator of several published works. *Leavenworth Papers No. 17, The Petsamo-Kirkenes Operation: Soviet Breakthrough and Pursuit in the Arctic, October 1944* (Washington, GPO: 1990) was the first study in English of an obscure Soviet offensive in the rugged terrain northwest of Murmansk. While an analyst at the Soviet Army Studies Office, Fort Leavenworth, Gebhardt authored several articles on Soviet Army tactics and Soviet Army and Navy special purpose forces. He translated and expanded the combat memoir of Twice Hero of the Soviet Union Viktor Leonov: *Blood on the Shores: Soviet Naval Commandos in World War II* (Annapolis: Naval Institute Press, 1993; also published in paperback by Ivy Books in 1994). Naval Institute Press published Gebhardt's second translation on this topic late in 1996: *Commandos from the Sea: Soviet Naval Spetsnaz in World War II*, by Yuriy Strekhnin. This book, originally published in the Soviet Union in 1962, recounts the combat exploits of naval scouts of the Black Sea Fleet and Danube River Flotilla from 1943 to 1945.

Gebhardt's most recent historical translation is *Commanding the Red Army's Sherman Tanks: The World War II Memoir of Hero of the Soviet Union Dmitriy Loza* (Lincoln: University of Nebraska Press, 1996). Loza fought with and then commanded a battalion of Lend-Lease M4A2 Sherman tanks in combat against the Germans from 1943 to 1945, and against Japanese forces in Manchuria in August 1945.

Eight previously published titles in this series of Soviet weapon manuals are listed on the last page of this book.

Mr. Gebhardt currently resides in Leavenworth, Kansas, and works as a computer simulation training specialist for a defense contractor supporting the U.S. Army at Fort Leavenworth.



INSTRUCTIONS
FOR
PREPARATION AND USE

*

FRAGMENTATION AND ANTITANK HAND GRENADES
AND MOLOTOV COCKTAILS

MILITARY PRESS
OF THE COMMISSARIAT OF DEFENSE OF THE USSR
MOSCOW 1944

This edition of *Instructions for Preparation and Use of Fragmentation and Antitank Hand Grenades and Molotov Cocktails* has been printed with changes and additions in connection with the acceptance into the inventory of the Red Army of new types of hand grenades and fuses.

The type-1941 hand grenade and the rifle grenade launcher for launching the Molotov cocktail have been eliminated from the *Instructions*.

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Introduction

COMBAT CHARACTERISTICS AND PURPOSE OF GRENADES AND MOLOTOV COCKTAILS

1. The **hand grenade** is designed to defeat the enemy immediately prior to a bayonet attack, and during combat in trenches, dugouts, communications trenches, built-up areas, forests, and mountains.

The following hand grenades are type-standardized in the Red Army:

1) Type-1933 grenade (RGD-33) [*ruchnaya granata Degtyareva*, or hand grenade of the Degtyarev design].

2) Type-1942 grenade (RG-42);

3) Type F-1 [*fugasnaya*, or high-explosive].

2. The **antitank hand grenade** is designed to combat light and medium tanks and armored cars with armor thicknesses up to 20 millimeters, and for throwing at light field fortifications, DOT and DZOT embrasures, machine gun nests, and all enemy mobility assets.

Translator's note: DOT is *dolgovremennaya ognevaya tochka* (permanent firing position), and DZOT is *derevo-zemlyanaya ognevaya tochka* (wood-earth firing position).

The Red Army's antitank grenade is the Type-1940 (RPG-40) [*ruchnaya protivotankovaya granata*, or antitank hand grenade].

3. The **Molotov cocktail** is intended for combating tanks, armored vehicles and personnel carriers, for setting supply depots and aircraft on airfields on fire, and also for destruction of enemy personnel located in structures and other forms of cover.

The Red Army currently employs two types of Molotov cocktail:

1) with self-igniting mixture KS [*kombinirovannaya smes*, or combined mixture].

2) with fuel mixture No. 1.

Translator's note: The Russian used here is *butylka s goryuchey smesyu*, literally "bottle with burning fuel mixture." I have used the familiar "Molotov cocktail," for simplicity and clarity.

4. The combat characteristics of the grenades are indicated in the following table.

Grenade name	Grenade type	Total weight of loaded grenade (in grams)		Average throw of grenade (meters)	Fuse burn time (seconds)	Lethal bursting radius of grenade fragments (meters)		Maximum bursting radius of grenade fragments (meters)	
		with fragmentation jacket	without fragmentation jacket			with fragmentation jacket	without fragmentation jacket	with fragmentation jacket	without fragmentation jacket
RGD-33	Fragmentation, offensive and defensive	w/normal jacket 750, w/lightened jacket, 625	500	30-40	3.2-3.8	25	5	100	25
RG-42	Fragmentation, offensive	—	400	30-40	3.2-3.4	—	15-20	—	15-20
F-1	Fragmentation, defensive	—	700	35-45	3.4-4.5	—	200	—	200
RPG-40	Antitank	—	1,200	20-25	contact	—	20	—	20

Chapter 1

TYPE-1933 HAND GRENADE (RGD-33)

Combat characteristics of the grenade

5. The Type-1933 hand grenade (Figure 1) belongs to the time-delay fuse class of offensive-defensive fragmentation grenades. The grenade's fuse ignites at the moment it is thrown, and the grenade itself detonates some 3.2 to 3.8 seconds after fuse ignition. The grenade will detonate reliably in water, snow, dirt, and so on.

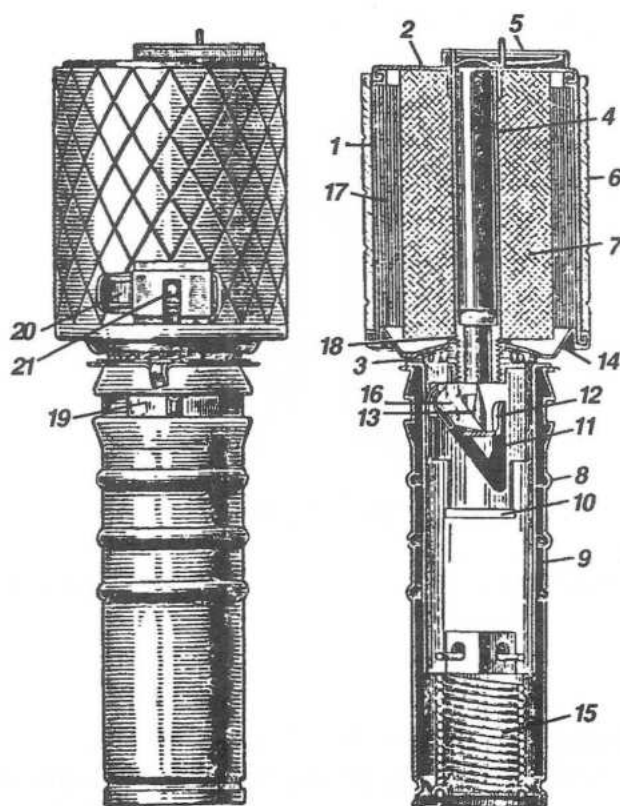


Figure 1. General view of the Type-1933 grenade:

- | | | |
|-----------------------|---------------------------------|-----------------------------|
| 1 - body | 2 - top cover | 3 - friction twist damper |
| 4 - central fuse well | 5 - top door | 6 - fragmentation jacket |
| 7 - explosive charge | 8 - handle outer tube | 9 - handle inner tube |
| 10 - insert | 11 - slots | 12 - arming clip |
| 13 - striker | 14 - base of body | 15 - operating spring |
| 16 - fuse safety | 17 - fragmentation belt | 18 - mounting washers |
| 19 - safety | 20 - fragmentation jacket latch | 21 - pin for securing latch |

6. The grenade is used with its **fragmentation jacket** only when thrown from a trench or cover. In all other uses, the grenade's fragmentation jacket is removed.

Construction of the grenade and fuse

7. The grenade consists of the body, fragmentation jacket, explosive charge, handle with ignition mechanism, and fuse.

8. The **body of the grenade** (Figure 2) contains the explosive charge and fuse, and provides for destruction of the enemy upon detonation. It is closed at the top by a flat cover, and at the bottom by a convex base. Housed inside the body are: the explosive charge; a metallic belt coiled in three or four layers, scored into squares to make fragments upon the grenade's detonation; and a central fuse well or well into which the fuse is inserted during the loading of the grenade.

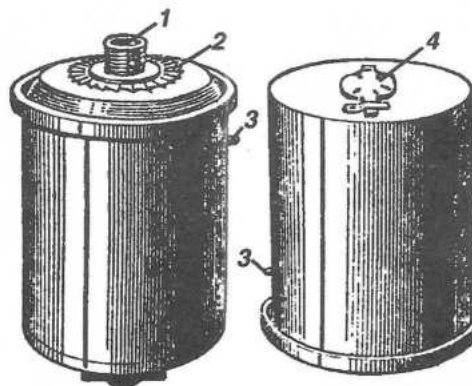


Figure 2. Type-1933 grenade body:

1 - central fuse well
3 - pin

2 - friction twist damper
4 - door

The central fuse well protrudes 7 to 9 millimeters from the grenade bottom, forming a threaded tenon onto which the grenade handle is screwed during assembly. This end of the tube is secured in the bottom of the body by two mounting washers—internal and external. A friction twist damper is fitted under the external washer. The teeth on this damper help prevent the handle from unscrewing.

On the upper cover of the body is a door that closes the central fuse well and secures the fuse when it is inserted in the well (Figure 3).

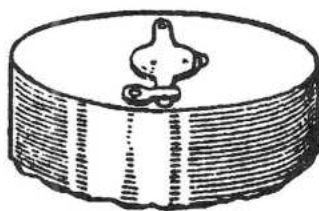


Figure 3. Door

On the lateral surface of the grenade body is a pin for securing the fragmentation jacket.

The explosive charge detonates the grenade. It is contained within the body, between the inner layer of the belt and the walls of the central fuse well (Figure 4). The grenade's explosive charge is safe during storage and handling of the grenade. It explodes only upon detonation of the detonator fuse.

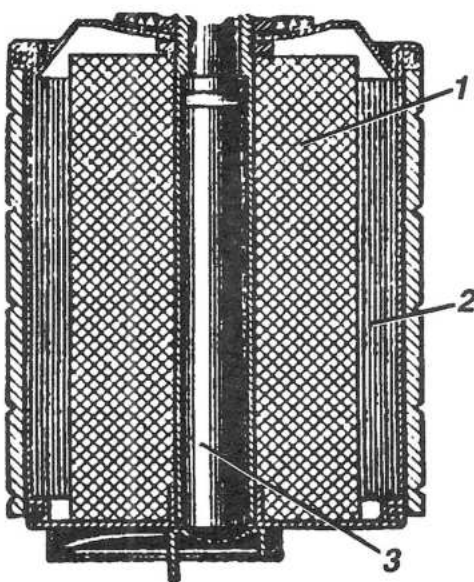


Figure 4. Explosive charge:

1 - explosive charge

2 - central fuse well with fuse

9. The **fragmentation jacket** (Figure 5) increases the lethal action of the grenade. It provides fragments that fly up to 100 meters in all directions following the grenade's detonation. To facilitate the breaking up of the jacket, the exterior surface of the jacket is scored. The jacket is placed on the grenade body from the top, and secured by a latch with a notch engaging the pin on the grenade body.

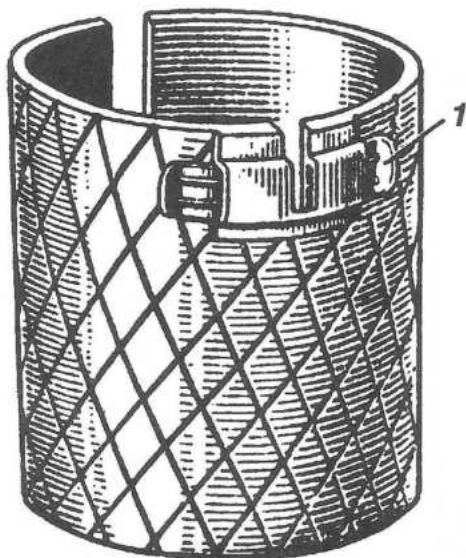


Figure 5. Fragmentation jacket for Type-1933 grenade:

1 - jacket latch

10. The **handle** (Figure 6) provides for ease of employment of the grenade and also contains the igniter mechanism. It consists of two tubes, one inserted into the other. The outer tube is open at its upper end, and closed on the bottom. On the wall of the tube near the upper end is a transverse hole for the safety lug and a red marker. The inner tube is open on both ends. It contains the grenade's igniter mechanism.

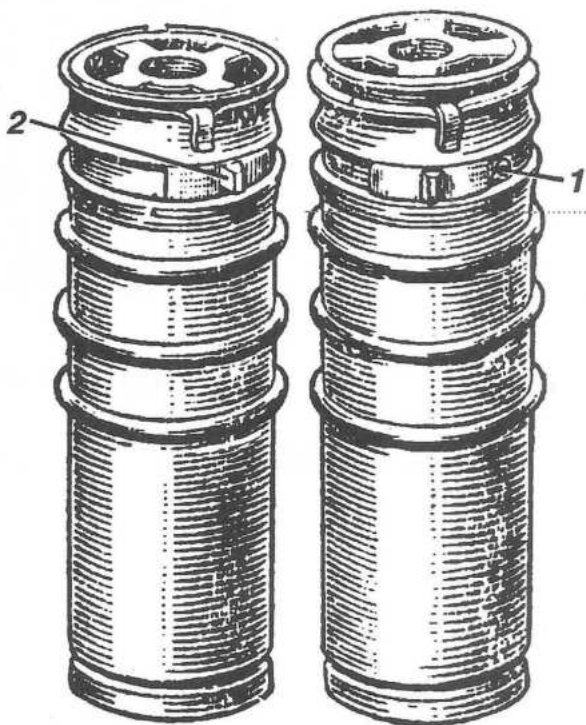


Figure 6. Handles for Type-1933 grenade:

1 - red marker (open)

2 - safety switch

11. The **grenade's igniter mechanism** (Figure 7) consists of the arming clip with striker, operating spring, insert, safety switch, and fuse safety.

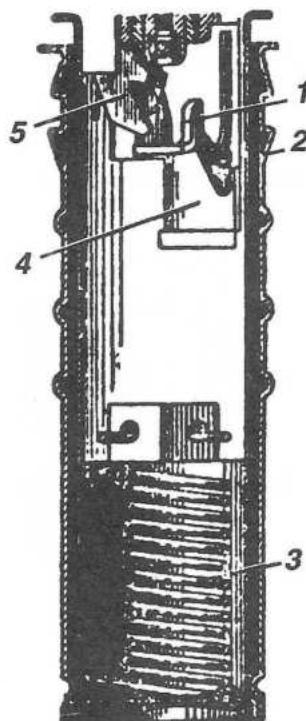


Figure 7. Igniter mechanism for Type-1933 grenade:

- | | | |
|------------------------------|-----------------|----------------------|
| 1 - arming clip with striker | 2 - notches | 3 - operating spring |
| 4 - insert | 5 - fuse safety | |

The arming clip with striker (Figure 8) ignites the capsule of the fuse igniter. It is attached to the upper edges of the outer tube by its bent upper ends, and its convex portion fits within the handle. The striker attaches to the middle part of the clip, with its point directed toward the grenade's central fuse well.



Figure 8. Arming clip with striker

The operating spring releases the arming clip with striker when the grenade is thrown. The upper end is attached to the lower section of the handle inner tube, and the lower end is attached to the bottom of the outer tube.

The insert (Figure 9) joins the handles with the grenade's body and places the arming pin in the safe and cocked positions. It is attached in a fixed position to the handle inner tube. On top of the insert is a circular opening for screwing onto the tenon of the central fuse well. The insert walls have shallow and deep longitudinal slots, along which pass the ends of the arming clip during operation of the grenade's igniter mechanism, and transverse notches for displacement of the safety lug.

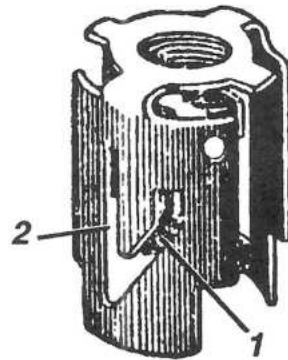


Figure 9. Insert:

1 - shallow slot

2 - deep slot

The safety switch (Figure 10) is used to place the grenade's igniter mechanism on safe. The safety switch is located on the outer handle, near its upper end. It has a rib on the outer surface for moving the switch, and a lug on the inner surface that fits in the notches of the inner tube insert.



Figure 10. Safety switch

The safety switch is held in the set position by a leaf spring located in a surface slot of the handle.

The fuse safety prevents ignition of the fuse capsule in the event of mistaken loading of the grenade with a released striker. It is housed inside the insert, near its upper end, and consists of a shoe, link, pin, and shoe spring.

The shoe is joined with the link by the pin, which is attached to the insert. The two-leaf shoe spring is attached on one end to the wall of the link, and by the other to the shoe, and holds the upper toe of the shoe across the upper threaded opening of the insert.

12. The **fuse** (Figure 11) detonates the grenade's explosive charge. It consists of an igniter capsule, time-delay pipette, detonator capsule, auxiliary detonator, and fuse case.

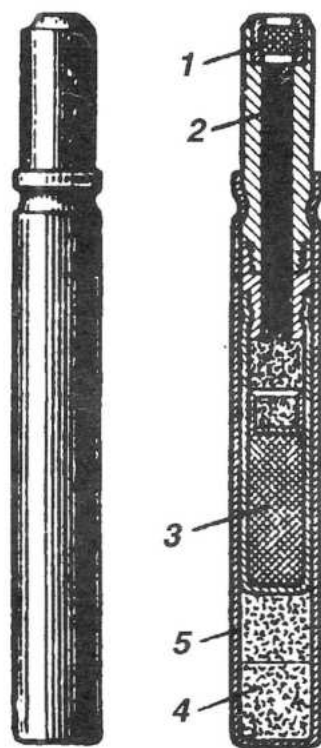


Figure 11. Fuse:

- | | | |
|-------------------------|------------------------|---------------|
| 1 - primer | 2 - time-delay pipette | 3 - detonator |
| 4 - auxiliary detonator | 5 - case | |

The purpose of the igniter capsule is to ignite the powder in the time-delay pipette.

The time-delay pipette transfers a flame from the igniter capsule to the detonator capsule. The pipette contains compressed black powder that burns in 3.2 to 3.8 seconds.

Fitted onto the lower portion of the time-delay pipette is a case with the detonator capsule for detonating the grenade's explosive charge.

The auxiliary detonator strengthens the action of the detonator capsule. It is housed at the bottom of the fuse case.

The fuse case joins all the parts of the fuse into a single unit.

Function of the Grenade's Components and Mechanisms

Position of the grenade's components and mechanisms before loading

13. The grenade's components and mechanisms before loading (with a released igniter mechanism) are located in the following positions:

- a) The handle outer tube, under pressure from the operating spring, is in the extreme forward position.
- b) The arming clip is in the extreme forward position, with its ends positioned in the deep longitudinal slots of the inner handle insert, and its forward plane touching the lower toe of the fuse safety shoe. The striker is opposite the center of the upper threaded insert hole; its point is not protruding beyond the upper face of the fuse safety shoe.
- c) The fuse safety shoe, held by its spring and the arming clip, is positioned across the upper threaded opening of the insert.
- d) The operating spring is compressed and rotated one-quarter turn to the right, and as a result it presses the handle outer tube forward to stop and attempts to rotate it to the left.
- e) The safety switch is moved to the right. Its lug is in the upper transverse notch of the insert and locks the handle outer tube in the forward position and the igniter mechanism in the released state.
- f) The fragmentation jacket is secured on the grenade body by its latch.
- g) The door covers the fuse well in the top of the grenade body.

Function of the grenade's components and mechanisms during loading

14. To load the grenade:

- 1) slide the safety switch to the left to stop;
- 2) pull the handle outer tube rearward to stop, rotate it to the right, and then push it forward to stop;
- 3) slide the safety switch to the right to stop;
- 4) open the [top] door;
- 5) insert the fuse in the grenade's central fuse well and close the door.

The following actions occur during this process:

a) When the safety switch is moved, its lug comes out of the upper transverse notch of the handle inner tube insert and is in the longitudinal slot. This unlocks the handle outer tube from the handle inner tube.

b) When the handle outer tube is pulled rearward, the operating spring is stretched. The arming clip moves along the deep longitudinal slots of the insert.

During the rotation of the outer tube to the right, the arming clip moves from the deep longitudinal slots of the insert into the shallow slots; the operating spring is still being twisted to the right.

During seating of the outer handle, it is forced forward by the operating spring. The arming clip is moved along the shallow longitudinal notches of the insert until its ends rest in the slots. The point of the striker is positioned some distance beneath the fuse safety shoe. The **red marker is exposed** in the handle outer tube window, and the grenade is cocked.

c) When the safety switch is moved to the right, its lug enters the lower transverse notch of the insert and locks the outer tube with the inner tube. The right flange of the switch **covers the red marker**. The grenade is on safe.

d) Rotation of the door opens the central fuse well.

e) Upon placement of the fuse in the fuse well, its end encounters the upper toe of the safety shoe, inclines it downward, and enters the insert. During this process, the igniter capsule stands aligned with the presented striker but above it; the lower toe of the shoe remains withdrawn toward the wall of the inner tube, and the shoe spring is compressed. When the top door is closed, the fuse well is closed and the safety shoe cannot displace the fuse upward in the fuse well.

The grenade is prepared for action (Figure 12).

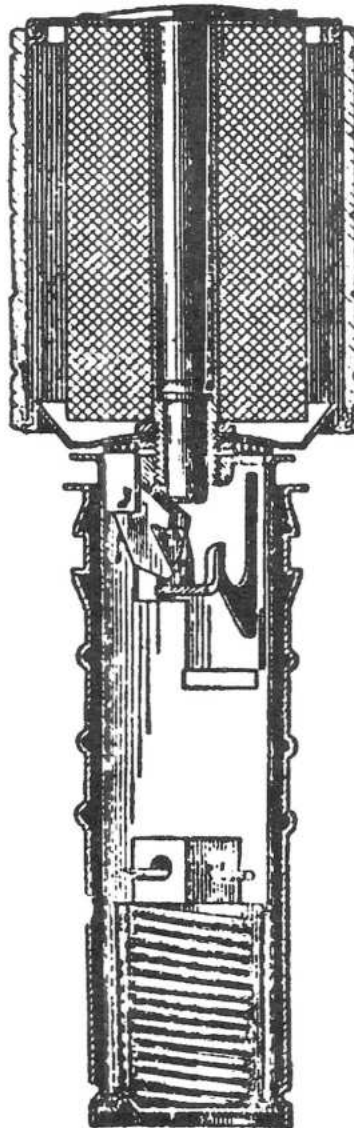


Figure 12. Position of components and mechanisms in a loaded Type-1933 grenade

Function of the grenade's components and mechanisms during throwing

15. When throwing the grenade:

- 1) slide the safety switch to the left;
- 2) holding the grenade by the handle, throw it at the target.

When the safety switch is moved to the left, its lug comes out of the insert's lower transverse notch and unlocks the handle outer tube from the handle inner tube and insert. The **red marker is exposed** in the window of the handle outer tube.

As the grenade is thrown, its body, together with the handle inner tube, moves away from the handle outer tube.

The following actions will then occur:

- a) The arming clip withdraws rearward along the insert's shallow longitudinal slots and withdraws the striker point.
- b) The operating spring is stretched.
- c) The inner tube, together with the grenade body, rotates to the right, resulting in the arming pin displacing in the insert's deep longitudinal slots.

When the grenade leaves the hand during the throw, the operating spring is compressed and delivers the handle outer tube forward toward the grenade's body.

The following actions occur during this process:

- a) The ends of the arming clip slide along the deep longitudinal slots of the insert and, reaching the extreme forward position, set off the igniter capsule with the striker (Figure 13).
- b) The igniter capsule ignites the time-delay pipette's powder charge, which burns for 3.2 to 3.8 seconds.
- c) When the fire reaches the detonator capsule, the latter explodes and detonates the grenade's explosive charge; the grenade blows up.

The grenade's igniter mechanism functions only when the grenade is hurled sharply.

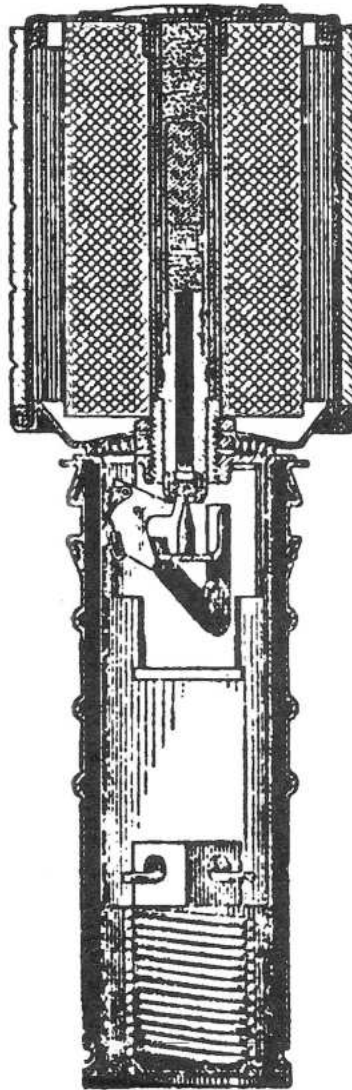


Figure 13. Position of components and mechanisms at the moment the fuse igniter capsule is struck

Handling the Grenade

Assembling the grenade

- 16.** Grenades arrive in units in assembled and disassembled form (body separate from handle).

To assemble the grenade: grasp the body in the left hand, and with the right hand screw the handle onto the tenon of the fuse well to stop. The handle should go all the way up to the bottom of the grenade's body (the gap cannot exceed 0.5 millimeters). If the gap is greater than 0.5 millimeters, carefully unscrew the handle and replace it with another. In the event the handle has been screwed on to the friction twist damper and cannot be unscrewed, with some effort screw the handle on as tight as possible.

The handle should be tightened to stop with modest effort on grenades that arrive in units in assembled form.

Inspecting and ensuring the serviceability of the grenade's mechanisms

17. During inspection of the grenade, ensure that its components and mechanisms are serviceable and that there is no corrosion on them.

If there is corrosion on the walls of the body, destroy the grenades by demolition. If there are green residues on the fuse, or if the walls of the fuse casing or time-delay pipette are damaged, also destroy the fuse by demolition (see paragraphs 66-70).

18. When inspecting the grenades, check:

1) the function of the door: the door should open and close freely with finger pressure, and be reliably held in the closed position;

2) the function of the safety switch: the switch should move to the right and left under the pressure of the right thumb; at the extreme right position, the switch should reliably hold the handle outer tube and not permit it to move rearward. At the extreme left position, it should not prevent the handle outer tube from moving. The switch should not displace in its slot of its own weight.

3) cocking the grenade: with the safety switch in the extreme left position, the handle outer tube should draw rearward with some effort, and upon rotation of the tube to the right and release, be in the cocked position (the red marker should be visible in the handle outer tube window);

4) placing the grenade on safe: when the igniter mechanism has been cocked and the red marker is covered by the safety switch, the handle outer tube should be reliably secured and not displace rearward;

5) release of the striker: when the igniter mechanism has been cocked and the red marker is exposed, a sharp swing of the grenade should release the igniter mechanism (confirm by swinging the grenade by the handle)

Translator's note: Clearly, this action is accomplished only before the fuse is installed in the fuse well. Otherwise, the grenade would detonate after 3.2 to 3.8 seconds.

6) attachment of the fragmentation jacket: when the latch is secured, the jacket should be securely held on the grenade body, and when the latch is freed, the jacket should freely fall away from the body.

Loading the grenade

19. The rifleman carries grenades in a grenade pouch in assembled and unloaded form: the igniter mechanism is released, the safety switch moved to the right to stop. The fuses are carried in special pockets of the grenade pouch, each fuse wrapped separately in paper or cloth.
20. To load the grenade place the igniter mechanism on cock and safe and insert the fuse.
To place the igniter mechanism on safe (Figure 14):
- 1) grasp the grenade by the handle in the right hand, with the safety switch upward, with body away from you, and slide the safety switch to the left to stop with the right thumb;
 - 2) grasp the grenade body with the left hand, and with the right hand pull the handle outer tube to stop, rotate it to the right, and deliver it forward; the grenade is cocked (red marker exposed);
 - 3) with the right thumb, slide the safety switch to the right to stop in order to cover the red marker; the grenade is on safe.

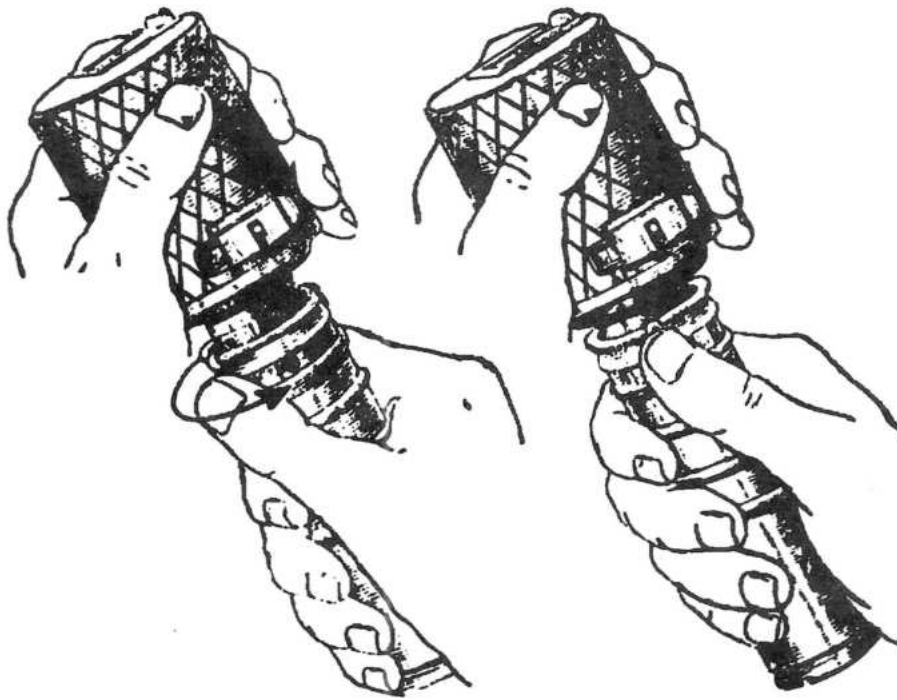


Figure 14. Cocking the grenade (left) and placing the grenade on safe (right)

In order to install the fuse in the grenade:

- 1) grasp the grenade by the handle in the left hand, with the body top upward;
- 2) open the door with the right hand to expose the fuse well opening;
- 3) grasp the fuse in the right hand (Figure 15) and carefully insert it in the grenade's fuse well with the igniter capsule downward, until the igniter capsule is resting on the fuse safety shoe (7 to 8 millimeters of the fuse remains outside the fuse well);
- 4) carefully press on the end of the fuse with the right thumb (Figure 16) to seat it, then close the door to secure the fuse. The grenade is loaded and prepared for action.

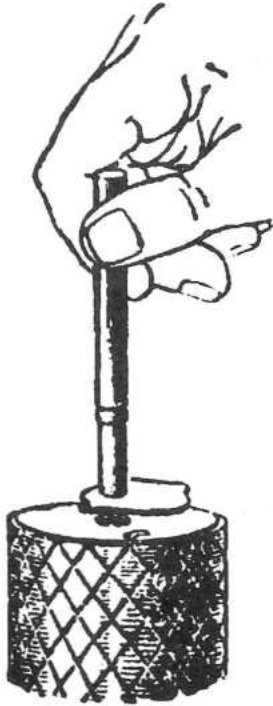


Figure 15. Inserting the fuse

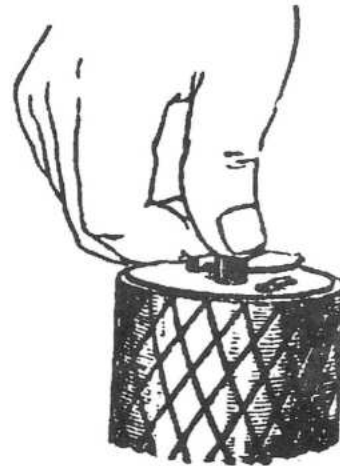


Figure 16. Seating the fuse

Throwing the grenade

21. To throw the grenade:

- 1) grasp the grenade by the handle as shown in Figure 17;
- 2) slide the safety switch to the left to stop with the thumb to expose the red marker;
- 3) without removing the thumb from the safety switch, throw the grenade at the target with a powerful swing.

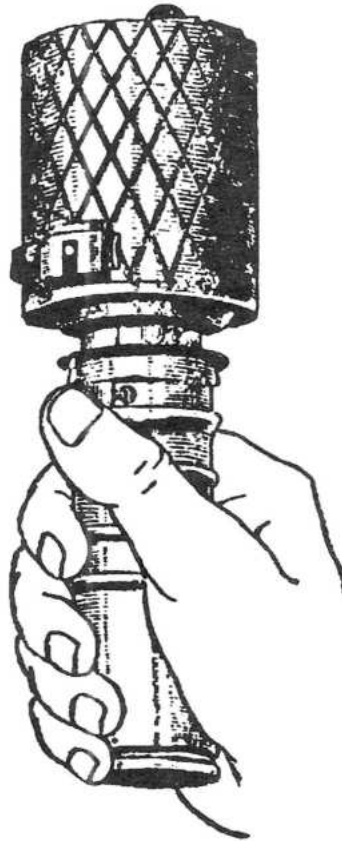


Figure 17. Holding the grenade for throwing

22. To throw the grenade without the fragmentation jacket, first ensure that the red marker is covered, then slide the jacket latch to the right and remove the fragmentation jacket.
23. If a loaded and cocked grenade is not thrown, place the igniter mechanism on safe by sliding the safety switch to the right to stop (concealing the red marker), and if required, unload the grenade.

Unloading the grenade

24. To unload the grenade:
- 1) ensure that the igniter mechanism is on safe (red marker concealed);
 - 2) holding the grenade with top upward, as during loading, open the door. The fuse, forced by the safety shoe, should extend 7 to 8 millimeters out of the fuse well;
 - 3) carefully remove the fuse, wrap it in paper or cloth, and place it in the pocket of the grenade pouch;
 - 4) close the door;
 - 5) release the igniter mechanism: slide the safety switch to the left, pull back on the handle outer tube to stop, release it and move the safety switch to the right;
 - 6) place the grenade in the grenade pouch.

Throwing grenades at tanks

25. For throwing grenades at tanks, take five grenades, **loaded and placed on safe**. Securely tie them around the bodies with a cord or wire: four grenades with handles in one direction, and the fifth handle in the opposite direction. To throw the bundle of grenades under the tank tracks, hold the bundle by the handle of the fifth grenade, and slide its safety switch to the left to expose the red marker. This grenade will detonate first and in turn detonate the whole bundle. Having thrown the bundle, take cover in a trench or dugout.

Chapter 2

HAND GRENADE FUSES

STANDARDIZED HAND GRENADE FUSE (UZRG)

Nomenclature and construction

26. The standardized hand grenade fuse (UZRG) [*unifitsirovanny zapal k ruchnym granatam*] is a time-delay device, intended for detonation of the explosive charge of hand grenades in both offensive and defensive employment.

27. The standardized fuse is utilized for grenades F-1 and RG-42.

28. The standardized fuse consists of two basic components (Figure 18): an igniter mechanism and the fuse itself.

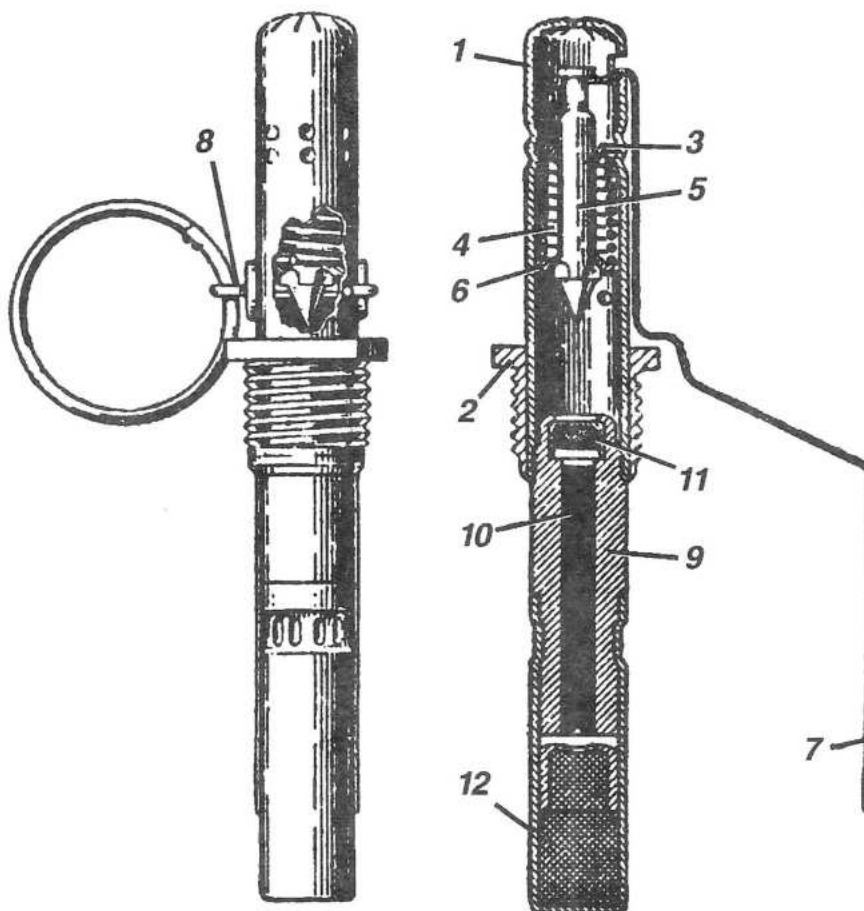


Figure 18. General and cutaway views of standardized fuse:

- 1 - igniter mechanism pipette
- 2 - joining adapter
- 3 - guide washer
- 4 - operating spring
- 5 - striker
- 6 - striker washer
- 7 - release lever
- 8 - safety pin with ring
- 9 - time-delay case
- 10 - time-delay charge
- 11 - igniter capsule
- 12 - detonator capsule

Both of these components are joined together with an adapter between them.

The igniter mechanism sets off the fuse's igniter capsule. It consists of the following components: igniter mechanism pipette; joining adapter; guide washer; operating spring; striker; striker washer; release lever; and safety pin with ring.

The **igniter mechanism pipette** is the foundation for assembly of all of the fuse's components (Figure 19).

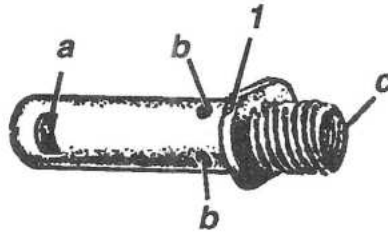


Figure 19. Igniter mechanism pipette with joining adapter:

- 1 - joining adapter
- a - notch for insertion of release lever fork
- b - hole for safety pin
- c - screw threads for attachment to time-delay pipette

On the upper portion of the pipette is a **notch** for inserting the release lever's fork; in the middle portion are **two holes** for the safety pin. The guide washer is secured inside the pipette in the upper portion, and on the inside lower portion are **screw threads** for attachment to the time-delay pipette.

The **joining adapter** is installed on the lower portion of the igniter mechanism pipette. It has threads for joining the fuse with the grenade body and a **limiting washer** that limits the depth to which the fuse can be screwed into the grenade. The limiting washer has two flattened edges for ease in screwing in the fuse.

The **striker** (Figure 20) sets off the igniter capsule, and is housed inside the pipette.

The striker has a point on the bottom that penetrates the capsule of the fuse igniter; two lugs on the lower sides for holding the striker washer; and a circular recess on the upper portion for passage of the release lever forks.

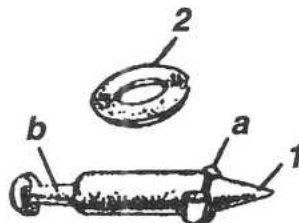


Figure 20. Striker and striker washer:

- 1 - point
- a - lug for rest of striker washer
- 2 - striker washer
- b - circular recess

The **operating spring** (Figure 21) imparts the movement to the striker necessary to strike the igniter capsule.



Figure 21. Operating spring

The operating spring fits on the striker. Its upper end is seated in the pipette's guide washer, and the lower end in the striker washer.

The **release lever** (Figure 22) holds the striker in the cocked position. On the upper portion of the release lever is a fork that fits in the circular recess of the striker. Lower on the release lever are two ears with holes for passage of the safety pin.

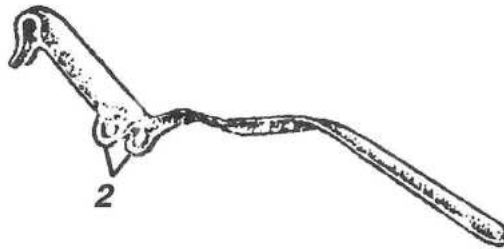


Figure 22. Release lever:

1 - release lever fork

2 - ears with holes for passage of the safety pin

The **safety pin** (Figure 23), passing through the holes of the release lever's ears and the walls of the igniter mechanism pipette, holds the igniter mechanism in the safe position. The **ends** of the pin are bent to the outside. Before the grenade is thrown, the ends of the pin must be straightened and the pin pulled by the ring, while firmly holding the release lever to the grenade body.



Figure 23. Safety pin

The **fuse itself** (Figure 18) consists of the time-delay case, time-delay charge, igniter primer, and detonator capsule.

The **time-delay case** (Figure 24) has threads on the upper portion for joining with the igniter mechanism pipette.



Figure 24. Time-delay case:

a - threads for joining to the igniter mechanism pipette

In the upper portion of the time-delay case (Figure 18) is the igniter capsule. The time-delay charge, calculated for 3.2 to 4 seconds of burning, is compressed in the core of the case under the igniter capsule. The detonator capsule is housed inside the casing.

29. The fuse is always in the cocked position.

In an assembled fuse, the components of the igniter mechanism are in the following positions (Figure 18):

- the **striker** is held in the cocked position by the release lever fork from above and by the safety pin from below;
- the **operating spring**, fitted on the striker, is in contact with the pipette guide washer at its upper end and with the striker washer at its lower end, and is under its greatest compression;
- the fork of the **release lever** is located in the striker's circular recess and with the aid of the safety pin is secured by its ears to the igniter mechanism pipette; the ends of the safety pin are bent.

30. It is categorically forbidden to disassemble the fuse or check the function of the igniter mechanism.

31. Fuses are issued in lots of 20 in cardboard boxes, which are wrapped in paper, bound with cord, and hermetically sealed with a wax coating.

KOVESHNIKOV FUSE

Nomenclature and construction

32. The Koveshnikov fuse is a time-delay type, intended for detonating the explosive charge of hand grenades. This fuse is used for the F-1 defensive grenade.

The fuse consists of two basic components (Figure 25): a fuse body and igniter mechanism.

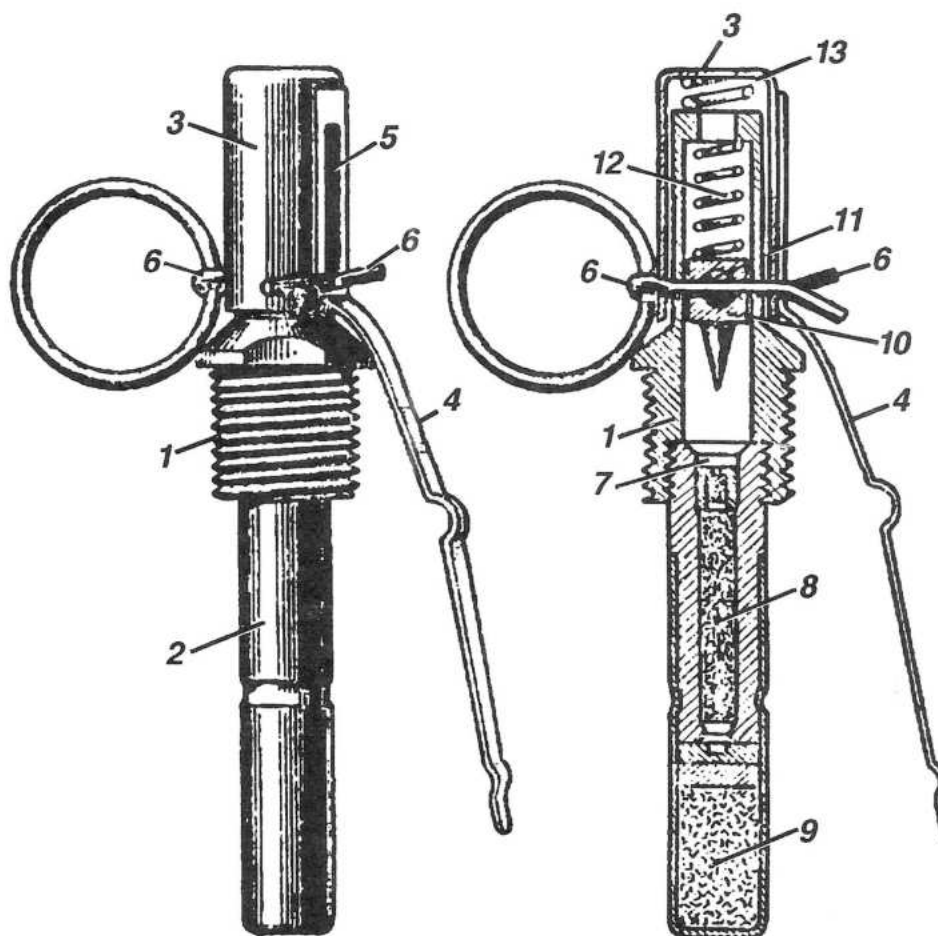


Figure 25. Koveshnikov fuse:

- | | | |
|------------------------|------------------------|-----------------------|
| 1 - fuse body | 2 - time-delay pipette | 3 - safety cap |
| 4 - external cap lever | 5 - limiting washer | 6 - safety pin |
| 7 - igniter capsule | 8 - powder charge | 9 - detonator capsule |
| 10 - striker | 11 - safety ball | 12 - operating spring |
| 13 - cap spring | | |

The fuse body (Figure 26) joins all of the fuse's components together. The bottom of the fuse body has threads for joining the fuse with the grenade body and a **limiting washer** (thickened shaft) that limits the depth to which the fuse can be screwed into the grenade. Two edges of the limiting washer are flattened for ease in screwing in the fuse. The top of the fuse body is closed by a cap. The **time-delay pipette** is screwed into the bottom of the fuse body. The walls of the fuse body have holes for the **safety ball and safety pin**.

The time-delay pipette transfers the flame from the igniter capsule to the detonator capsule. A powder charge that will burn for 3.5 to 4 seconds is compressed in its core.

The igniter capsule ignites the powder charge contained in the time-delay pipette. It is contained in the upper portion of the **time-delay pipette**.

The detonator capsule, which detonates the grenade's explosive charge, is enclosed in a copper pipette attached to the bottom of the time-delay pipette.

The igniter mechanism ignites the igniter capsule. It consists of the striker, operating spring, safety ball, safety cap with external lever, cap spring, and safety pin.

The striker (Figure 27) ignites the igniter capsule. It is housed inside the fuse body. The striker has a point on the bottom, a semi-circular notch on the side for the safety ball, a transverse hole for the safety pin, and longitudinal grooves for escape of gases during burning of the powder that is compressed into the time-delay pipette.

The operating spring (Figure 28) imparts the movement to the striker that is required for striking the igniter capsule. It is housed in the fuse body above the striker.

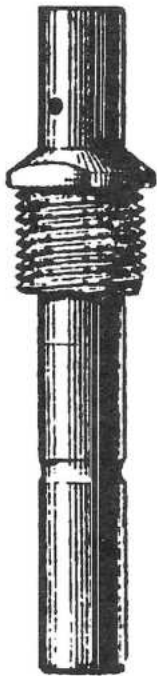


Figure 26. Fuse body



Figure 27. Striker



Figure 28. Operating spring

Chapter 3

TYPE-1942 HAND GRENADE WITH STANDARDIZED FUSE (RG-42)

Combat characteristics of the grenade

33. The Type-1942 hand grenade (RG-42) with standardized fuse (Figure 32) belongs to the time-delay type of fragmentation grenades. The grenade's fuse is ignited at the moment it is thrown, and the grenade itself explodes 3.2 to 4 seconds after ignition of the fuse. The grenade detonates reliably in water, snow, dirt, and so on.

The grenade is used both during the offense and the defense.

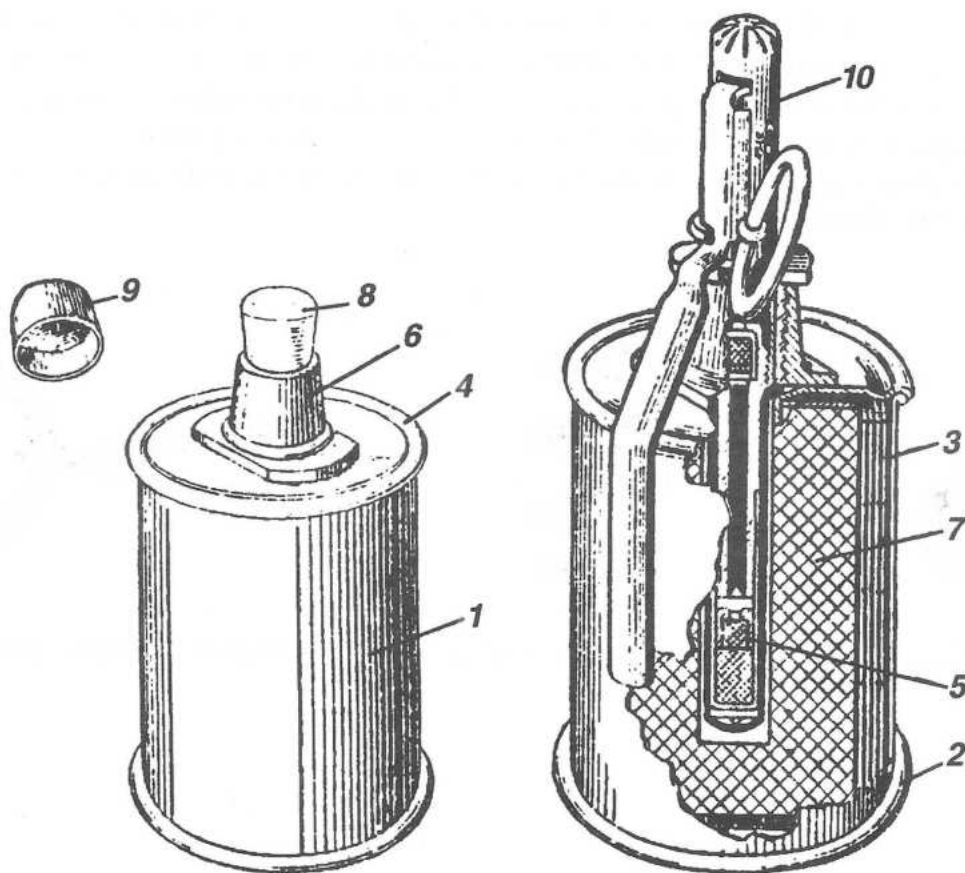


Figure 32. General and cutaway views of the RG-42 grenade:

- | | | |
|------------------------|-----------------|-------------------|
| 1 - grenade body | 2 - base | 3 - metallic belt |
| 4 - top | 5 - fuse well | 6 - flange |
| 7 - explosive charge | 8 - wooden plug | 9 - metal cap |
| 10 - standardized fuse | | |

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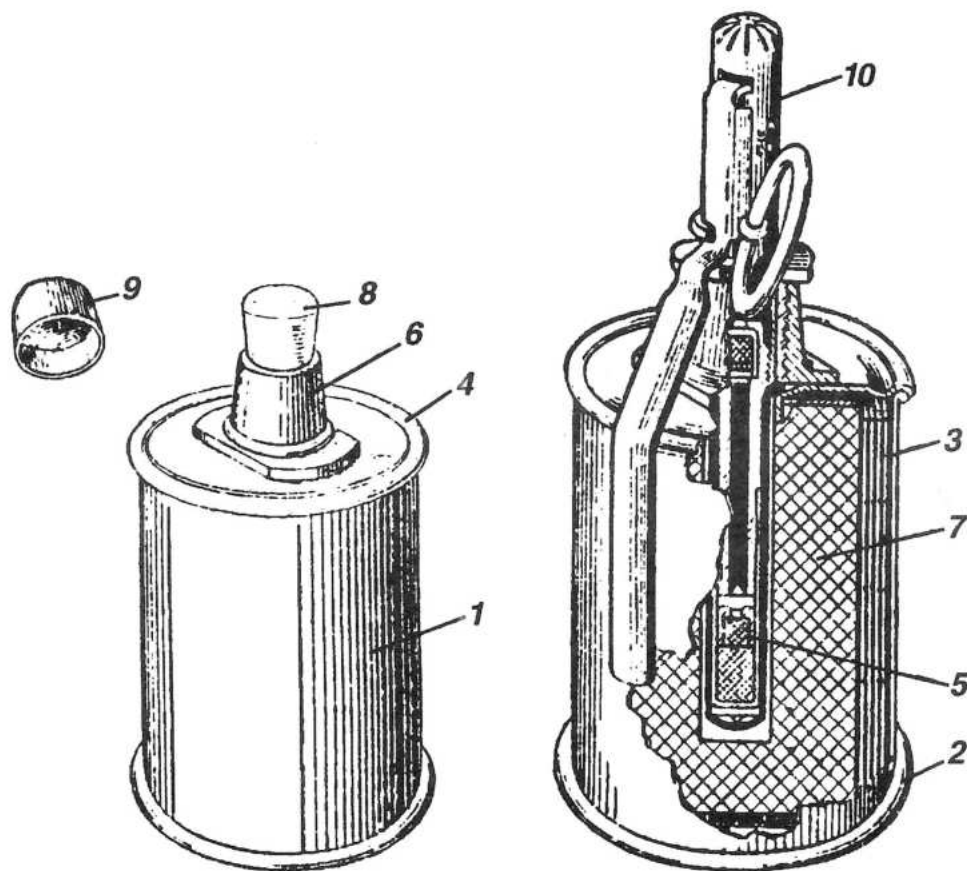


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| 7 - explosive charge | 8 - wooden plug | 9 - metal cap |
| 10 - standardized fuse | | |

Construction of the grenade

34. The grenade consists of the following components: grenade body, explosive charge, wooden plug or metallic cap, and standardized fuse.

The **grenade's body** (Figure 32) houses the explosive charge and fuse, and also destroys the enemy with fragmentation during detonation. The grenade's body is closed by a flat bottom and a top.

Inside the body are the **explosive charge**; a **metallic belt** wound in 3 to 4 layers and scored in squares, that increases the number of fragments during the grenade's detonation; and a **fuse well** for housing the fuse.

A **flange** is attached to the body at the top of the grenade. Inside the flange are threads for screwing in the standardized fuse.

The **explosive charge** explodes the grenade, and is contained inside the grenade between the inner layers of the belt and the walls of the fuse well. The grenade's explosive charge is safe during storage and handling of the grenade. It will explode only upon detonation of the detonator fuse.

The **plug or metallic cap** (Figure 32) protects the fuse well from contamination.

Replace the grenade's wooden plug or metallic cap with a service fuse only at the moment when the grenade is being prepared for combat.

Function of the grenade's components and mechanisms

Position of the grenade's components and mechanisms before loading

35. RG-42 hand grenades are stored with a wooden plug inserted in the flange hole or with a metallic cap on the flange. The fuses are carried separately from the grenades. The fuse's igniter mechanism is always cocked, with its components in the following position: the striker is held in the cocked position by the release lever fork and safety pin. The upper end of the operating spring, which is fitted on the striker, is against the guide washer of the igniter mechanism pipette, and the lower end is against the striker washer. The spring is at its greatest compression. The release lever fork is lodged in the circular recess of the striker and, aided by the safety pin through its ears, is secured to the fuse pipette. The ends of the safety pin are bent over.

Position of the grenade's components and mechanisms during loading

36. To load the grenade:

- 1) remove the wooden plug from the grenade's flange hole or take off the metallic cap (Figure 33);
- 2) insert a fuse in the flange hole and screw it in to stop (Figure 34).



Figure 33. Removing the plug



Figure 34. Inserting the fuse in the flange hole

Function of the grenade's components and mechanisms during throwing

37. To throw the grenade:

- 1) grasp the grenade in the right hand and tightly press the release lever to the grenade body with the fingers (Figure 35);
- 2) straighten the ends of the safety pin with the fingers of the left hand (Figure 36);
- 3) tightly pressing the release lever to the grenade's body with the fingers of the right hand, pull out the safety pin ring with the left hand (Figure 37);
- 4) hurl the grenade at the target with a swing of the arm (Figure 38).



Figure 35. Holding the grenade during preparation to throw

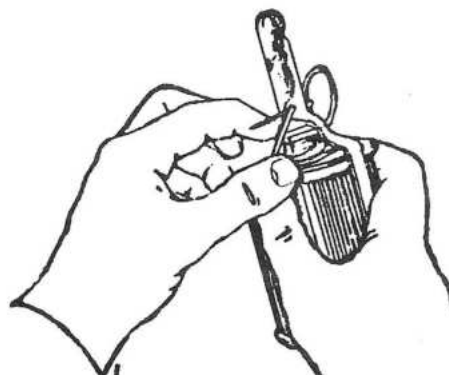


Figure 35. Straightening the pin



Figure 37. Pulling out the safety pin

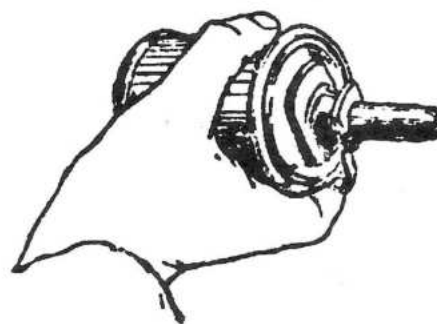


Figure 38. Holding the grenade in the hand for the throw

When the safety pin is pulled out, the igniter mechanism (striker) is not released from cock, because the trigger fork lever is lodged in the circular recess of the striker and firmly holds the striker in the extreme upper position.

During the throw, the release lever is freed from the pressure of the fingers and its fork comes out of the circular recess of the striker.

Under pressure from the operating spring, the striker indents the igniter capsule with its point and ignites it.

The flame from the igniter capsule ignites the time-delay portion of the fuse and, burning through it in 3.2 to 4 seconds, is transferred to the detonator capsule. When the detonator capsule explodes, it detonates the grenade's explosive charge. The grenade's casing is ruptured, and the resulting fragments fly out in all directions.

Unloading the grenade

- 38.** The grenade can only be unloaded when the safety pin has not been pulled out of the fuse.
To unload the grenade:
- 1) remove the fuse, wrap it in paper or cloth, and place it in the pocket of the grenade pouch;
 - 2) insert the wooden plug in the flange hole or install the metallic cap.

Chapter 4

F-1 HAND GRENADE

Combat characteristics of the grenade

39. The F-1 hand grenade (Figure 39) belongs to the time-delay class of defensive fragmentation grenades.

Standardized and Koveshnikov fuses are used in the F-1 grenade.

Grenades with standardized fuses explode 3.2 to 4 seconds after fuse ignition, and with Koveshnikov fuses after 3.5 to 4.5 seconds.

This grenade is thrown only from trenches or other covered positions.

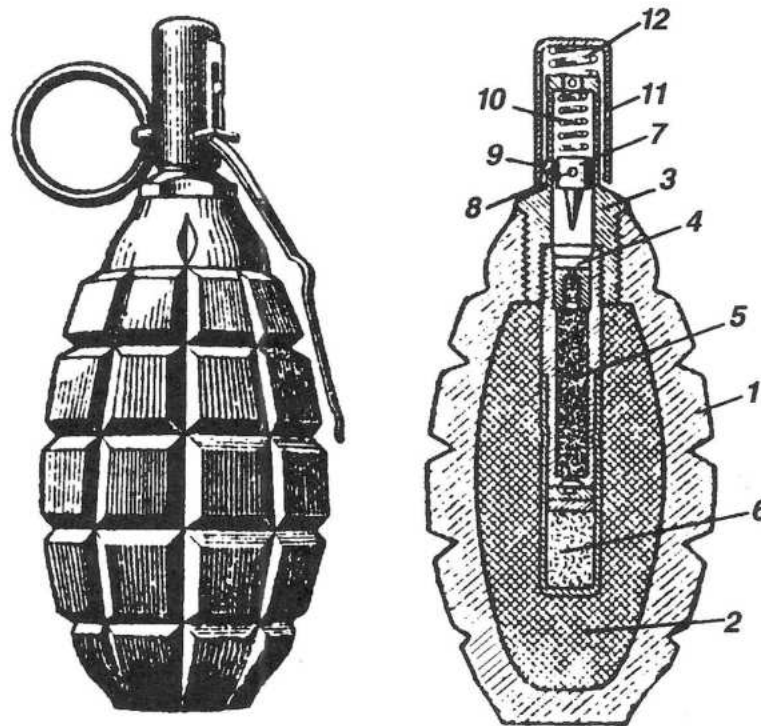


Figure 39. General view and components of the F-1 grenade with Koveshnikov fuse

- | | | |
|--------------------------|------------------------------------|-----------------------|
| 1 - grenade body | 2 - explosive charge | 3 - fuse body |
| 4 - fuse igniter capsule | 5 - powder charge | 6 - detonator capsule |
| 7 - striker | 8 - hole in striker for safety pin | 9 - safety ball |
| 10 - operating spring | 11 - safety cap | 12 - cap spring |

Construction of the grenade

40. The grenade consists of the body, explosive charge, and fuse.
41. The **grenade body** contains the explosive charge and fuse, and also defeats the enemy with fragments upon explosion of the grenade. The surface of the body is cut with horizontal and vertical fissures. The grenade body breaks into fragments at these fissures. On the upper end of the body is a **threaded hole**, into which is screwed a **simulation plug** (Figure 40).

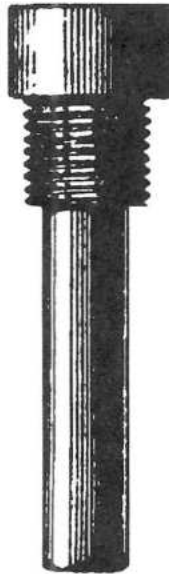


Figure 40. Simulation plug

42. The **explosive charge**, intended for exploding the grenade, is contained in the body.

Function of the components and mechanisms of the grenade with Koveshnikov fuse

43. The F-1 grenade is carried without fuse, with a simulation plug inserted in its place. The fuses are carried separately from the grenades. The Koveshnikov fuse igniter mechanism is always armed: the striker is cocked; the operating spring is compressed, with the striker point aligned with the igniter capsule; the striker is being held in the cocked position by the safety pin and safety ball, half of which is lodged in the hole of the fuse body, and the other half in the striker notch; the safety ball is held in this position by the safety cap; the cap is fitted to the top of the fuse and is secured by the safety pin; the ends of the pin are bent to the side and firmly hold the pin from falling out.

Position of the grenade's components and mechanisms during loading

44. When loading the grenade:

- 1) remove the simulation plug;
- 2) carefully screw a fuse into the grenade's top opening.

When screwing in the fuse, it goes into the body until it contacts the limiting washer. There should be a 3 to 5 millimeter gap between the outer cap lever and the wall of the body to ensure the safety ball functions during throwing.

Function of the grenade's components and mechanisms during throwing

45. To throw the grenade:

- 1) grasp the grenade in the right hand as shown in Figure 41, and firmly press the outer lever of the safety cap toward the grenade body with the fingers;
- 2) holding the lever pressed to the grenade body with the right hand, with the left hand remove the safety pin;
- 3) hurl the grenade at the target with a swing of the arm.



Figure 41. Holding the grenade for throwing

Note. A pin that has been pulled cannot be re-inserted, therefore pull it out only immediately before throwing.

Upon removal of the safety pin, the striker and safety cap are freed, but the igniter mechanism is not released from cock, because the safety cap is held to the fuse by the outer lever, which is being pressed to the grenade body by the thrower. Therefore, the safety ball is still wedged in the striker notch and holds the striker in the cocked position.

When the grenade is thrown, the outer safety lever is released; under the impulse of its spring, the cap is displaced upward and the safety ball is freed. Under the impulse of the operating spring, the striker dislodges the safety ball from its notch and the hole in the wall of the fuse body, strikes on the capsule with its point, and ignites it. The flame from the capsule, passing through the time-delay portion of the fuse, reaches the detonator in 3.5 to 4.5 seconds. The detonator is exploded and in turn detonates the grenade's explosive charge. The grenade casing is ruptured, and resulting fragments fly out in all directions.

Unloading the grenade

46. The grenade can be unloaded only if the safety pin has not been pulled out of the fuse.
To unload the grenade:
- 1) remove the fuse, wrap it in paper or cloth, and place it in the pocket in the grenade pouch;
 - 2) screw a simulation plug into the grenade fuse well.

Chapter 5

TYPE-1942 ANTITANK HAND GRENADE (RPG-40)

Combat characteristics of the grenade

47. The Type-1942 antitank hand grenade (Figure 42) belongs to the contact-action class of high explosive grenades.

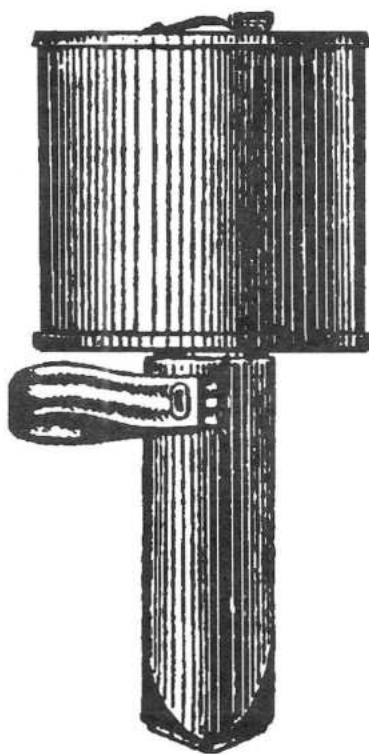


Figure 42. General view of Type-1940 antitank hand grenade (RPG-40)

The grenade detonates at the moment it strikes a hard surface.

The grenade is thrown from trenches or covered positions (crater, ditch, corner of building, and so on).

Construction of grenade and fuse

48. The grenade consists of the body, explosive charge, handle with striker and safety mechanism, and fuse.

49. The **grenade's body** (Figures 43 and 44) contains the explosive charge and fuse. It has a top and bottom. Inside the body is the explosive charge and fuse well with transverse hole, into which the fuse is inserted during loading of the grenade.

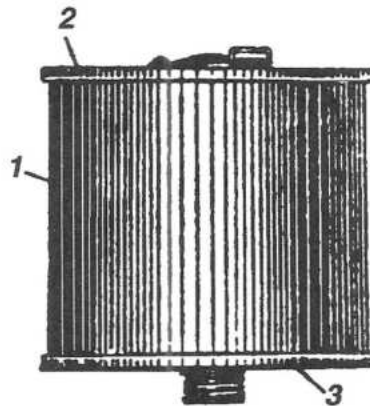


Figure 43. Body of antitank hand grenade:

1 - grenade body

2 - top

3 - bottom

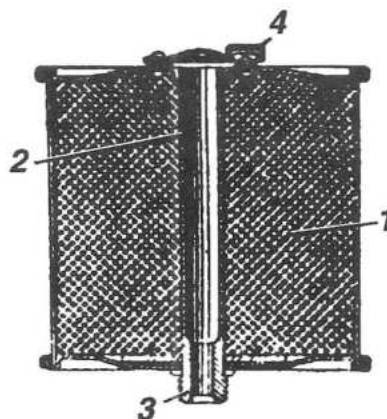


Figure 44. Cutaway view of antitank grenade body:

1 - explosive charge

2 - fuse well

3 - threaded tenon of fuse well

4 - fuse door

The threaded portion of the fuse well extends 7 to 8 millimeters below the bottom of the body, forming a tenon onto which the handle is screwed.

On the top of the body is a fuse door that covers the fuse well and secures a fuse that has been inserted into the body.

50. The **explosive charge** is for destruction of armor and other barriers. It is contained within the body between the inner walls of the body and the walls of the fuse well. The grenade's explosive charge is safe during storage and handling. It explodes only from the explosion of the detonator fuse.

51. The **handle** (Figure 45) is for ease in employing the grenade and contains the striker and safety mechanism. It consists of the body, ear, fixed tube, washer, flange, and bottom.

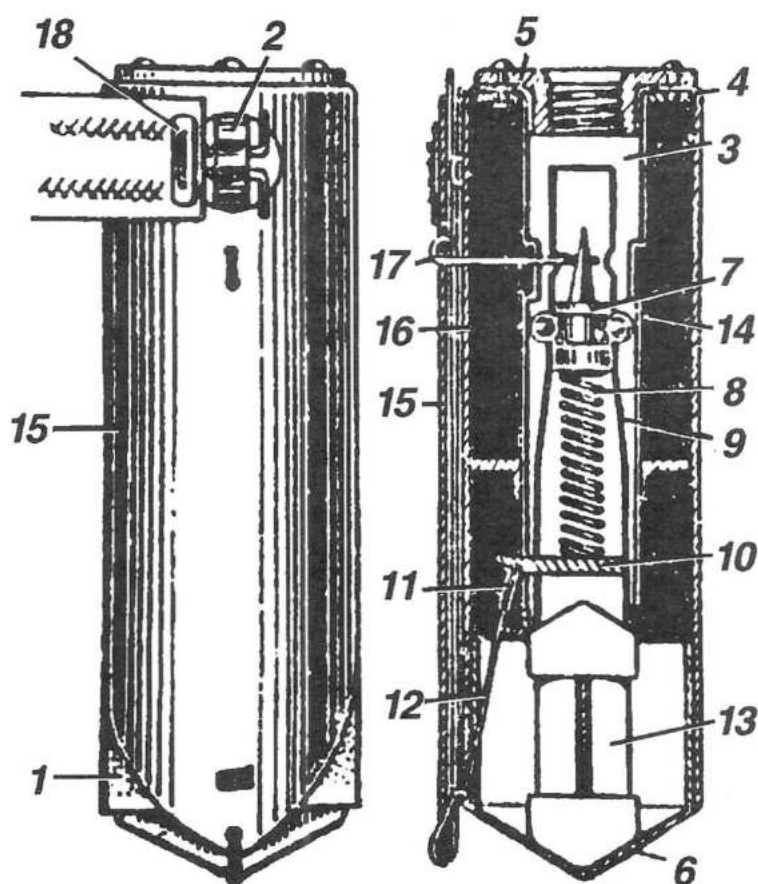


Figure 45. Cutaway view of handle:

- | | | |
|------------------------|----------------------|----------------------|
| 1 - handle body | 2 - ear | 3 - fixed tube |
| 4 - washer | 5 - flange | 6 - bottom cap |
| 7 - striker with point | 8 - operating spring | 9 - movable tube |
| 10 - stop | 11 - stop loop | 12 - needle loop |
| 13 - weight | 14 - ball | 15 - deploying strip |
| 16 - needle | 17 - wire | 18 - pin |

Secured on the upper end of the handle body is a flange with threads for screwing onto the tenon of the grenade body's fuse well. Housed inside the handle body is the fixed tube, which is secured to the handle body by a rivet and washer. Welded onto the upper part of the handle's lateral surface is an ear, which, along with a pin, secures the deploying strip. The deploying strip safety wire is inserted in the hole below the ear. A hole for the lug of the deploying strip is on the lower portion of the handle body. The bottom of the handle body is closed by a bottom cap, with a hole through which the end of the needle loop emerges.

The striker mechanism (Figure 45) is located inside the handle and consists of the striker with point, operating spring, fixed tube with stop, stop loop, needle loop, weight, and two balls.

The striker with point punctures the fuse detonator capsule. On the lateral surface of the striker is a circular groove for housing the balls; a point is anchored in the striker and aligned with the fuse well of the grenade. The striker with point is housed within the movable tube.

The operating spring forces the striker to puncture the detonator capsule. It is located inside the movable tube between the striker and movable tube stop.

The balls hold the striker at cock. They are housed in holes of the movable tube wall and in the circular groove of the striker.

The movable tube contains the operating spring, striker with point, and balls. It is housed inside the fixed tube. The movable tube has two diametrically positioned holes for displacement of the balls. The hole located above the holes for the balls is for the safety wire. In the broad end of the movable tube is a stop for the bottom end of the operating spring and for attachment of the stop loop. The stop loop is connected to the needle loop, which holds the striker mechanism at cock.

The weight is for release of the firing mechanism. One end is in contact with the bottom cap, and the other at the broad end of the movable tube.

The safety mechanism consists of the deploying strip with needle and wire and pin.

The deploying strip is for extraction of the needle during the grenade's flight in order to free the striker mechanism.

The needle is attached to the deploying strip and holds the striker mechanism in the cocked position.

The wire is an auxiliary safety in the event the needle loop is broken during transportation.

The pin secures the deploying strip to the grenade body.

52. The fuse (Figure 46) is a multiple-action device, designed to detonate the grenade's explosive charge. It consists of a fuse adapter, detonator capsule, fuse case, and auxiliary detonator.

The fuse adapter is for assembly of all the fuse's elements.

The detonator capsule detonates the auxiliary detonator.

The fuse case contains the auxiliary detonator.

The auxiliary detonator detonates the grenade's explosive charge.

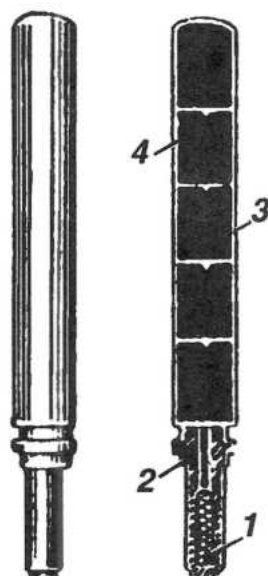


Figure 46. Cutaway of fuse:

1 - detonator capsule
3 - fuse case

2 - fuse adapter
4 - auxiliary detonator

Function of the grenade's components and mechanisms

Position of the grenade's components and mechanisms before loading

53. The contact-detonating antitank grenade (RPG-40) is carried without fuse, with the handle screwed on. Fuses are carried separately from grenades. The grenade's striker mechanism is always in the armed position: the striker is cocked, the operating spring is compressed; the striker is held in the cocked position by two balls, which are lodged both in the circular groove of the striker and in the hole of the movable tube; the balls are held in this position by the fixed tube. The movable tube is in the extreme rearward position and is held (with the aid of the loop) by the needle of the deploying strip. The weight is pressed between the handle bottom cap and the movable tube. The deploying strip is tightly pressed to the grenade's handle and held in this position by the pin; the pin ends are bent to the side and firmly hold it from falling out. The wire of the strip is inserted in a hole in the handle body, fixed and movable tubes, and is positioned at the front of the striker.

Position of the grenade's components and mechanisms during loading

54. To load the grenade:

- 1) grasp the grenade by the handle in the right hand so that the deploying strip is tightly pressed to the handle body (Figure 47);
- 2) open the door with the left hand;
- 3) insert the fuse; the fuse should insert freely in the fuse well, do not use force (Figure 48);
- 4) close the fuse door.

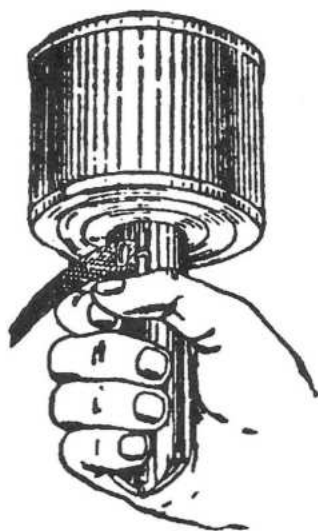


Figure 47. Holding the grenade during loading

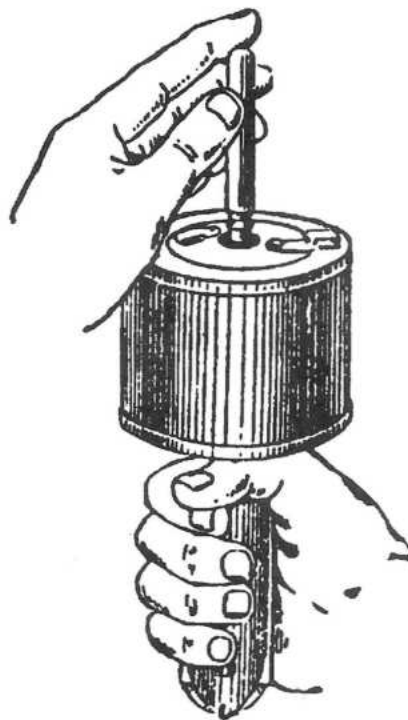


Figure 48. Inserting the fuse

Function of the grenade's components and mechanisms when thrown

55. To throw the grenade:

- 1) holding the grenade with the right hand by the handle, remove the pin with the left hand (Figure 49);
- 2) swing back and throw the grenade at the target;
- 3) having thrown the grenade, immediately take cover.

It is categorically forbidden to drop a loaded grenade from which the pin has been pulled. If a loaded grenade has not been thrown, it is necessary, without freeing the deploying strip, to open the door with the left hand and remove the fuse. Install the pin and bend its ends.

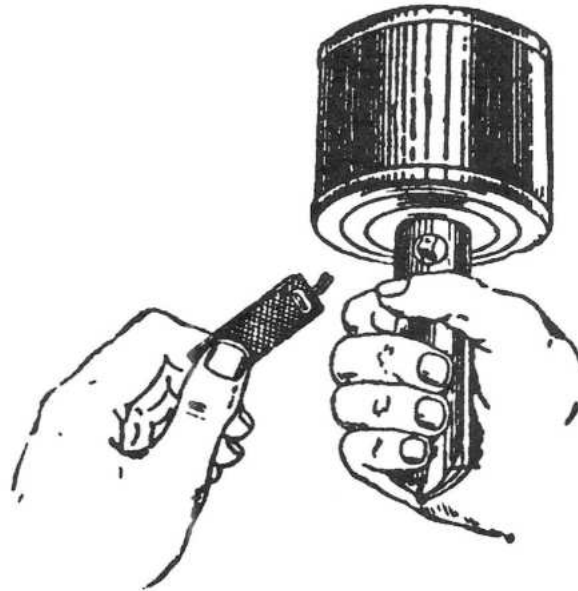


Figure 49. Throwing the grenade

When the grenade is thrown, the deploying strip is freed and extracts the needle during flight. The needle frees the loop that has been holding the movable tube. After separation of the deploying strip, the striker mechanism is prepared to function. When the grenade strikes a solid object, the weight imparts movement to the movable tube, regardless of what the grenade has struck.

When the movable tube moves, its holes that house the balls are repositioned into alignment with ports in the fixed tube. The balls that are holding the striker in the cocked position fall away and free the striker. The striker, under the impulse of the operating spring, moves forward and penetrates the capsule, which immediately detonates the grenade.

Because the antitank hand grenade explodes immediately upon impact with an obstacle, it is necessary to strike the target with it (tank, armored vehicle, and so on). Only under this condition will the most destructive effect be achieved. If the grenade does not strike the target, it will detonate when it strikes the ground without destroying the target. When the grenade is thrown at a tank, it must strike the tank's most vulnerable spots: the roof of the turret, the engine compartment cover, or the tracks.

Handling the grenade

Assembly of the grenade

56. Grenades arrive in units in disassembled form (bodies separate from handles).

To assemble the grenade, grasp the grenade body in the left hand, and with the right hand screw the handle onto the tenon of the fuse well to stop.

Inspection for serviceability of the grenade's mechanisms

57. When inspecting the grenade, pay attention to the following:

- a) The body should not have dents and corrosion; if corrosion has eaten through the grenade body, the grenade should not be thrown, but destroyed by demolition. The body's fuse well should be clean.
- b) The handles should not have dents or unserviceable parts (needles, loops, strip, bottom cap); do not issue unserviceable handles to soldiers.
- c) The ends of the pin that secures the deploying strip to the handle body should be spread, and should not have cracks at the bending site.
- d) The needle should be joined to the safety strip and be inserted in the loop of the movable tube.
- e) The wire of the strip should be positioned at the front of the striker.
- f) In winter conditions, before throwing it is necessary to ensure that the deploying strip has not frozen to the handle body. Move the strip without pulling out the pin to check this.
- g) Disassembly of the grenade handle and fuse is categorically prohibited.

Chapter 6

METHODS OF THROWING HAND GRENADES AND GENERAL HANDLING RULES

Methods of throwing hand grenades

58. Throwing hand grenades consists of executing the following tasks: preparation for throwing (loading grenade, removing fragmentation jacket if required, and taking up position for throwing), throwing the grenade, and unloading the grenade.
59. Throwing of grenades is executed by riflemen upon the commander's command or independently.
60. The command **"Prepare grenades"** is given to prepare for grenade throwing.
Upon this command, the riflemen to which the command has been given remove grenades from their grenade pouches, remove (if necessary) the fragmentation jacket, and load the grenades.
61. For throwing the grenades, the command is given (as an example): **"At the enemy dugout, grenades—fire."**
Upon this command, the riflemen move (pull out) the safety and throw grenades at the target.
62. To unload the grenade, the command is given **"Unload grenades."**
Upon this command, the riflemen unload their grenades.
63. Grenades can be thrown from a standing (in place or on the move), kneeling, or prone position.
64. When throwing RGD-33, RG-42, or F-1 grenades, the rifleman should attempt to throw the grenade so that it falls as close to the target as possible. The trajectory of the grenade should be near vertical, so that a grenade, when it has fallen near the target, will not roll away.
When throwing the RPG-40 grenade, it is necessary to strike the target.
As a rule, grenades can also be thrown with the left arm.

General rules for handling and storing hand grenades

65. The following rules must be strictly observed to avoid unfortunate accidents when handling grenades.
- a) Carry grenades in a grenade pouch in unloaded form. Keep fuses separate from grenades, each wrapped individually in paper or cloth.
 - b) Do not strike grenades and fuses, and do not attempt to correct deficiencies in grenade mechanisms with makeshift tools. Report any deficiencies detected to the commander.
 - c) Protect grenades, and especially fuses, against jars and blows that might damage the mechanisms or detonate the fuses.

d) Protect the grenades and fuses against fire, high heat, humidity, and dirt. If grenades and fuses become wet or dirty, at the first opportunity carefully and thoroughly wipe them with a cloth, and dry them in the sun or in warm surroundings, but not near fire.

e) Always store grenades and fuses separately; load grenades only before throwing or upon the commander's special order.

f) Execute preparation to load, unload, and throw grenades, guided by the provisions of these instructions appropriate to the type of grenade.

g) Conduct training in the construction of fuses, grenades, and methods of handling them only with training (simulation) types.

h) Load and unload grenades in a setting that excludes danger for surrounding personnel.

i) In a combat situation, store all supplies of grenades and fuses in units (except those carried by soldiers in grenade pouches) in factory packing.

Destruction by demolition of unexploded grenades and fuses

66. Unit commanders organize the destruction of unexploded grenades.

67. To destroy unexploded RGD-33 and RG-42 grenades, collect them in a pit, dug so that the grenades to be exploded are tightly assembled and fill the pit. Place the demolition block in the center of the grenades, insert a No. 8 detonator capsule with a piece of fuse in the hole in the block.

68. Unexploded F-1 grenades are detonated with demolition blocks in the location where they have fallen. When detonating them, keep in mind that fragments from the F-1 grenade can fly out to 200 meters. Therefore, personnel located within this radius should take cover.

69. It is categorically forbidden to touch unexploded RPG-40 grenades;

To detonate these grenades, the demolition block is placed in immediate proximity of, but not closer than 0.5 centimeters to, the grenade body.

70. A slow-burning (1.25 meters/second) fuse cord is used to detonate grenades. For safety, it is necessary to use that length of cord that will ensure the possibility of lighting the fuse from cover.

Chapter 7

MOLOTOV COCKTAILS

Combat characteristics of Molotov cocktails

71. Bottles are filled with self-igniting liquid “KS” or fuel mixture No. 1.

The action of a Molotov cocktail includes the following: the bottle breaks upon striking a hard object. A bottle filled with “KS” liquid instantly self ignites, and a bottle filled with fuel mixture No. 1 is ignited by the ampoule located in the bottle.

[Translator’s note: During World War II, Molotov cocktails were factory produced and issued to units in wooden crates as a supply item, just like hand grenades, conventional small arms ammunition, and mortar rounds. These Molotov cocktails were supplied with factory-produced ignition ampoules.]

“KS” Liquid

72. By external appearance, “KS” Liquid is yellowish-green or dark brown in color, with the odor of rotten eggs.

73. The liquid is self-igniting in exposed air and burns with a bright flame, forming a large quantity of white smoke. The burning temperature reaches 800 to 1000° C.

74. “KS” liquid that has struck a tank (armored car), upon burning will set fire to parts of the tank in places where it has landed. The smoke blinds the crew; burning liquid that seeps through cracks will ignite everything inside the tank, disable the engine group, and set the fuel cell ablaze. The crew will be forced to abandon the tank to save themselves from the fire.

Burning liquid that falls on clothing will penetrate to the body, causing serious burns.

The burn time of one bottle with “KS” liquid is 1.5 to 3 minutes.

75. The liquid can be extinguished with sand, dirt, and water. It is necessary to keep in mind that in cases of insufficient covering with dirt, and also after evaporation of water, the liquid can ignite once again.

Mixture No. 1

76. Mixture No. 1 is a sticky liquid of yellowish color. It easily wets down metal surfaces and sticks to them. The liquid is ignited by a special ignition ampoule.

The burning temperature is 700 to 800° C. When burning, it gives off a small amount of black smoke. One bottle will burn for 40 to 50 seconds. After burning, the liquid leaves a hard translucent film.

The actions of mixture No. 1 on tanks (vehicles) are similar to the actions of “KS” liquid.

Bottles with "KS" liquid

77. Normal beer bottles with a capacity of 0.5 to 0.75 liters (Figure 50) are used for filling with "KS" liquid.



Figure 50. Bottle with "KS" liquid

A bit of water and kerosene are added to a bottle filled with "KS" liquid to prevent the "KS" liquid from contact with air. The bottle is corked with a rubber stopper. The stopper is secured with wire and insulating tape.

Bottles with fuel mixture No. 1

78. Ordinary water bottles and other bottles with a capacity of 0.5 to 0.75 liters are used for filling with fuel mixture No. 1. The bottles are filled with the mixture to the neck and stopped with a cork stopper.

79. To ignite the mixture, a glass ampoule fuse igniter is inserted into the bottle. The glass ampoule fuse is filled with liquid that ignites at the moment when the bottle and the ampoule are broken. For ease in removing the stopper from the bottle for insertion of the ampoule, the stopper should have a string with knot passed through a hole made in the cork.

Employment of Molotov cocktails

80. A bottle-throwing soldier should be armed with not less than three Molotov cocktails. To destroy tanks, the soldier takes up a position in a trench, dugout, or shell crater, behind a fence, in a pit, ditch, or in some other cover (see Figures 51, 52, and 53), and upon the appearance of tanks (vehicles) prepares the bottles for throwing.

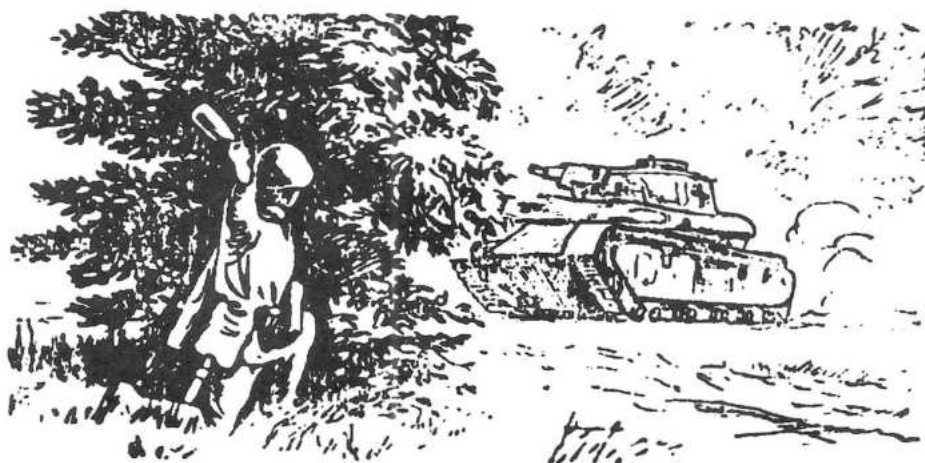


Figure 51. Throwing the Molotov cocktail from behind a bush

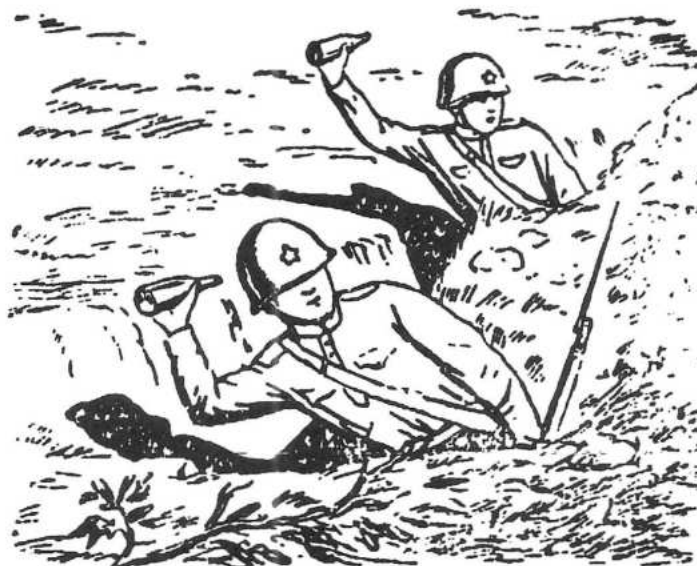


Figure 52. Throwing the Molotov cocktail from a trench

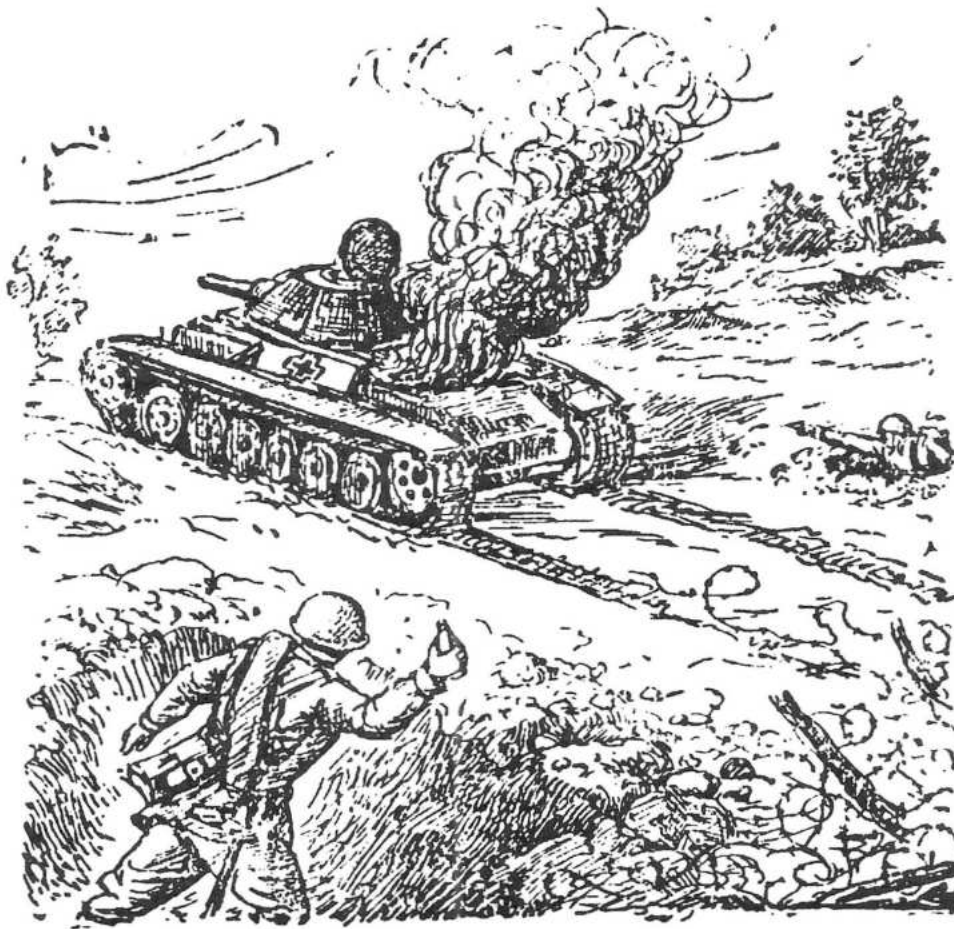


Figure 53. Throwing the Molotov cocktail from ambush

81. Having permitted the tank (vehicle) to approach to within 15 to 20 meters, the soldier picks up a bottle with “KS” with his hand around the cylindrical portion, and a bottle with mixture No. 1 by the neck or whatever is convenient, and throws it at the tank.

It is better to throw the bottle from the standing or kneeling position.

The most vulnerable places on a tank are the engine compartment (in the rear of tanks and in the front of armored cars), vision ports, and partly opened hatches (Figure 54). With lucky hits, a tank (vehicle) can be set on fire with two or three bottles.

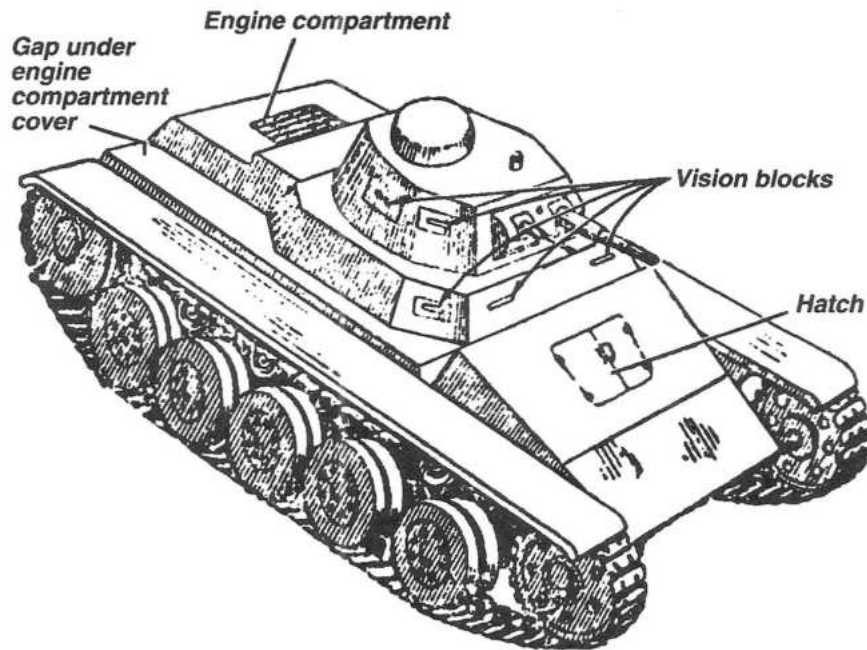


Figure 54. Vulnerable places on a tank for defeat with Molotov cocktails

Employment of Molotov cocktails in winter conditions

82. The following flammable mixtures are recommended in winter conditions:

Name of Mixture	Marking	Temperature at which it can be employed
Winter "KS"	"KS-3"	-40° C
Mixture No. 1	Mixture No.1	-40° C

83. At temperatures of -10° and below, use up to two ignition ampoules for each bottle. Drop one ampoule in the bottle, and attach the second to the outside of the bottle with rubber bands (Figure 55).



Figure 55. Attaching ampoule to outside of bottle

Instructions for packaging and storage of Molotov cocktails

84. For transport, bottles are packed in wooden crates and buried in loose dirt (Figure 56) or dried sand.

The bottles must be covered on all sides. The crates should be marked with "top" and "bottom."

Additionally, bottles with mixture No. 1 are packed in crates with a box of glass igniter ampoules on the basis of two ampoules for each bottle.

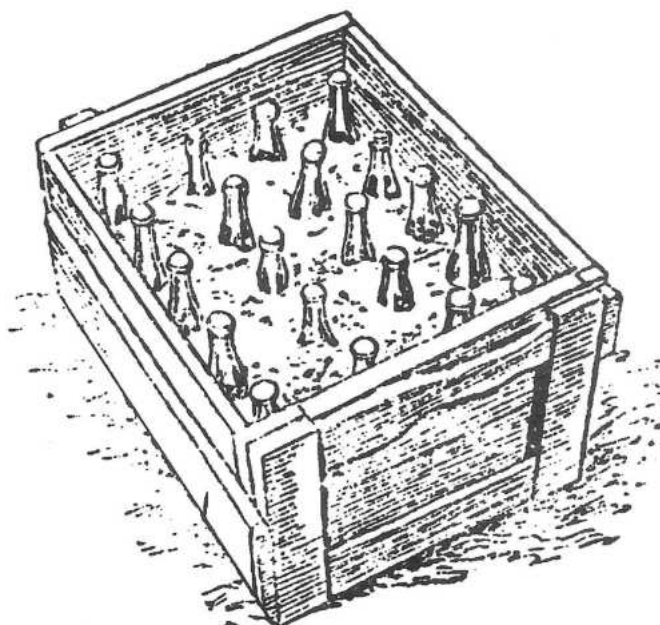


Figure 56. Packing of Molotov cocktail bottles in crate

85. The following preventive measures are employed during transportation of the bottles:

- a) do not toss or invert crates with bottles;
- b) carefully observe the condition of the packing; if any smoke appears, immediately inspect the crate and determine the source; carefully remove the bottle with rubber gloves and bury it in the ground; fill in the space created in the crate with soil;
- c) if one or more bottles ignite, extinguish them with dirt or sand, without removing them from the crate.

86. For carrying, Molotov cocktails are packed in a pouch with partitions (Figure 57); in the absence of partitions in the pouch, insulate the bottles from each other with rags, paper, straw, and so on.

During normal movement, wear the pouch with bottles across the shoulder; when running, as a preventive measure hold the pouch vertically in the left hand, preventing it from striking anything.



Figure 57. Packing Molotov cocktail bottles in pouch

INSTRUCTIONS
FOR
PREPARATION AND USE



HAND GRENADES

Military Press of the Ministry of Defense of the USSR
Moscow 1974

This manual contains descriptions of the fragmentation and antitank hand grenades in the current [1974] inventory of the Soviet Army.

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Part One

CONSTRUCTION, HANDLING, MAINTENANCE, AND PRESERVATION OF GRENADES

General Information

1. Fragmentation hand grenades (Figure 1) are intended for defeating enemy troops with shrapnel in close battle (during the attack, in trenches, dugouts, populated areas, in the forest, in mountains, and so on).

The Soviet Army is equipped with the following grenades:

- hand grenade RGD-5;
- hand grenade RG-42;
- hand grenade F-1.

Depending on the bursting radius of the shrapnel, grenades are classified as offensive or defensive. The RGD-5 and RG-42 hand grenades are considered offensive grenades, and the F-1 grenade as defensive.

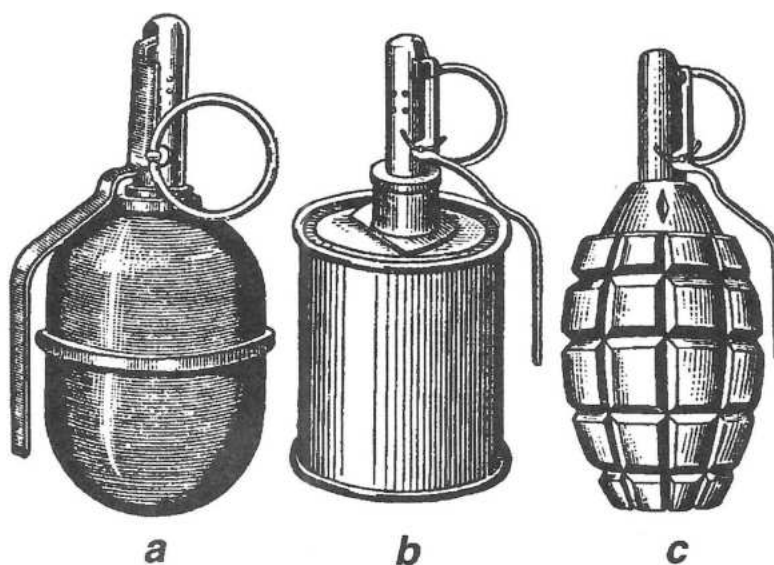


Figure 1. General view of fragmentation hand grenades:

a - RGD-5

b - RG-42

c - F-1

Fragmentation hand grenades are equipped with the modernized standard hand grenade fuse (UZRGM) [*unifitsirovannyy zapal k ruchnym granatam modernizirovannyy*].

Note. It is forbidden to use the UZRG fuses that have been issued to the forces for grenade throw training. They are being replaced by UZRGM fuses.

The fuse primer is ignited at the moment the grenade is thrown, and the grenade detonates 3.2 to 4.2 seconds later.

The RGD-5, RG-42, and F-1 grenades will detonate reliably in dirt, snow, water, and so on. The explosion generates a large quantity of shrapnel, which flies out in all directions. The shrapnel of the RGD-5 and RG-42 grenades possess sufficient energy to defeat personnel targets to a radius of 25 meters, and of the F-1 grenade to 200 meters.

2. The RKG-3 shaped-charge hand grenade [*ruchnaya kumulyativnaya granata*] (Figure 2) is an antitank grenade and is intended for combating tanks and other armored targets (self-propelled artillery, armored troop transporters, armored cars, and so on), and also for destroying hard obstacles and field fortifications.

The shaped-charge hand grenade detonates immediately upon striking a target (hard object). The gases that are formed during this explosion are formed into a narrow jet by the shaped charge, which permits penetration of the armor of any modern tank and the destruction of the crew and equipment inside the tank. The most effective action of the grenade occurs when it strikes the target with the blunt end. The stabilizer ensures the flight of the grenade with the blunt end forward.

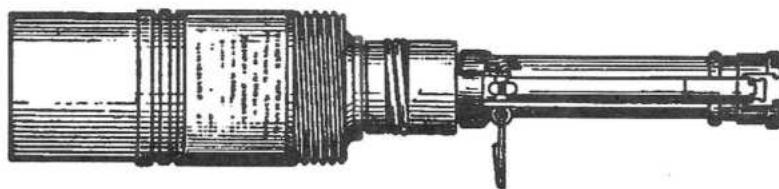


Figure 2. General view of the shaped-charge hand grenade RKG-3

3. The relatively modest weight of grenades permits trained soldiers to throw them to the following ranges: fragmentation grenades to 40 to 50 meters; antitank grenade to 15 to 20 meters.

Chapter 1

NOMENCLATURE, COMBAT CHARACTERISTICS, AND CONSTRUCTION OF FRAGMENTATION HAND GRENADE RG-42

Nomenclature and combat characteristics of grenade

4. The RGD-5 fragmentation hand grenade is a time-delay grenade, intended for defeating enemy personnel in the offense and defense. The grenade can be thrown from various positions while dismounted or from an armored personnel carrier (truck). The bursting radius for lethal fragments of this grenade is approximately 25 meters. The average throwing range of the grenade is 40 to 50 meters.

The weight of a loaded grenade is 310 grams. [11 ounces].

The burn time of the delay fuse is 3.2 to 4.2 seconds.

Construction of grenade

5. The RGD-5 fragmentation grenade (Figure 3) consists of a body with a fuse well, explosive charge, and fuse.

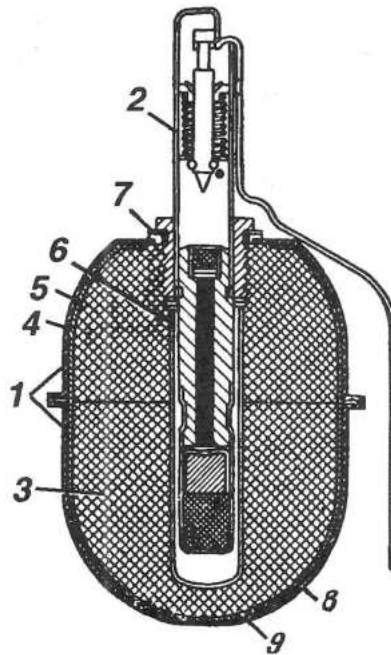


Figure 3. Construction of RGD-5 fragmentation grenade

1 - body	2 - fuse	3 - explosive charge
4 - cap	5 - cap liner	6 - fuse well
7 - seal	8 - pan	9 - pan liner

6. The **grenade body** contains the explosive charge and fuse well, and also forms the shrapnel when the grenade is detonated. It consists of two parts—the upper and lower casings.

The upper portion of the body consists of an external shell called the cap, and cap liner. The fuse well with bushing is joined to the upper portion of the cap. The fuse well serves to join the fuse to the grenade and hermetically seals the explosive charge in the body.

A plastic plug is screwed into the fuse well to protect it from contamination. A fuse is installed in place of this plug when preparing the grenade for throwing.

The lower portion of the body consists of the outer shell, called the pan, and the pan liner.

7. The **explosive charge** fills the body and serves to detonate the grenade into fragments.

8. The **UZRGM** (modernized standard hand grenade fuse) **grenade fuse** is designed to detonate the explosive charge (Figure 4). It consists of a striker mechanism and the fuse itself.

The **striker mechanism** ignites the fuse ignition primer. It consists of the striker mechanism pipette, joining bushing, guide washer, operating spring, striker, striker washer, release lever, and safety pin with ring.

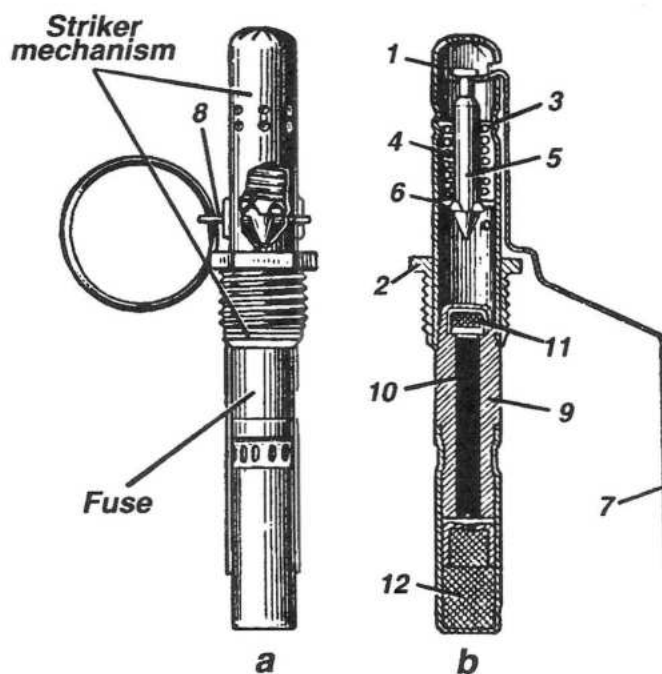


Figure 4. UZRGM grenade fuse:

a - general view	b - cutaway view	
1 - striker mechanism pipette	2 - joining bushing	3 - guide washer
4 - operating spring	5 - striker	6 - striker washer
7 - release lever	8 - safety pin	9 - time-delay plug
10 - time-delay fuse	11 - igniter primer	12 - detonator capsule

The striker mechanism pipette is the base for assembly of all the fuse parts.

The joining bushing serves to join the fuse with the grenade body. It fits on the lower portion of the time delay pipette.

The guide washer is the stop for the upper end of the operating spring and guides the movement of the striker. It is secured to the upper portion of the time delay pipette.

The operating spring imparts the energy needed by the striker to dent the igniter primer. It fits on the striker; its upper end rests against the guide washer and its lower end on the striker washer.

The striker (Figure 5) dents and ignites the igniter primer. It is contained within the striker mechanism pipette.

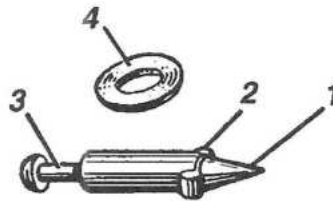


Figure 5. Striker and striker washer:

- | | | |
|--------------------|---------------------------|-----------------------------------|
| 1 - striker point | 2 - ridge for washer stop | 3 - recess for release lever fork |
| 4 - striker washer | | |

The striker washer fits on the lower end of the striker and is the stop for the lower end of the operating spring.

The release lever (Figure 6) holds the striker in the cocked position (operating spring compressed). The release lever is secured to the striker mechanism pipette by the safety pin.



Figure 6. Release lever:

- | | |
|----------|------------------------------------|
| 1 - fork | 2 - ears with holes for safety pin |
|----------|------------------------------------|

The safety pin (Figure 7) passes through the holes in the ears of the release lever and walls of the striker mechanism pipette. It has a ring for grasping it.



Figure 7. Safety pin with ring

The **fuse proper** (Figure 4) detonates the grenade's explosive charge. It consists of the time-delay bushing, the igniter primer, the time-delay substance, and the detonator capsule.

The bushing is threaded on its upper portion for joining to the striker mechanism pipette and a pocket for the igniter primer. Inside is a channel that contains the time-delay substance, and on the outside a recess for joining to the detonator capsule case.

The igniter primer sets off the time-delay substance. The time-delay substance transfers the flame to the detonator capsule. It consists of a pressed low-gas substance.

The detonator capsule detonates the grenade's explosive charge. It is contained in the casing that is affixed to the lower portion of the time-delay bushing.

9. Fuses are always armed. It is **categorically forbidden** to disassemble fuses and check the function of the striker mechanism.

The function of the grenade's components and mechanisms

10. Before throwing the grenade. Take the grenade out of the pouch, unscrew the shipping plug from the center hole, and screw in the fuse in its place to stop. The components of the striker mechanism are in the following condition: the striker is cocked and held in the upper position by the fork of the release lever, joined with the striker mechanism pipette by the safety pin. The ends of the safety pin are spread and firmly hold the pin in the fuse.

11. Throwing the grenade. Pick up the grenade in the hand for throwing so that the release lever is pressed to the grenade body by the fingers. Not releasing the lever, pull out the safety pin and throw the grenade at the target. After pulling out the safety pin, the position of the fuse components does not change. The striker is held in the cocked position by the release lever, which is freed from attachment to the striker mechanism pipette, but pressed toward it by the fingers. At the moment the grenade is thrown, the release lever separates from the grenade and frees the striker. Forced by the operating spring, the striker hits (dents) the igniter primer and ignites it. The flame from the igniter primer sets off the time-delay substance (the grenade is now in flight) and, burning through it, is transferred to the detonator capsule. The detonator capsule explodes and detonates the grenade's explosive charge. The grenade body is broken up and fragments of the body and fuse fly out in all directions.

Chapter 2

NOMENCLATURE, COMBAT CHARACTERISTICS, AND CONSTRUCTION OF FRAGMENTATION HAND GRENADE RG-42

Nomenclature and combat characteristics of grenade

12. The RG-42 fragmentation hand grenade is a time-delay weapon designed to destroy enemy personnel in the offense and defense. The grenade can be thrown from various positions while dismounted or in an armored personnel carrier (truck). The bursting radius for lethal fragments of this grenade is approximately 25 meters. The average throwing range of the grenade is 30 to 40 meters.

The weight of a loaded grenade is 420 grams [15 ounces].

The burn time of the delay fuse is 3.2 to 4.2 seconds.

Construction of the grenade

13. The RG-42 fragmentation hand grenade (Figure 8) consists of the body with fuse well, metallic belt, explosive charge, and fuse.

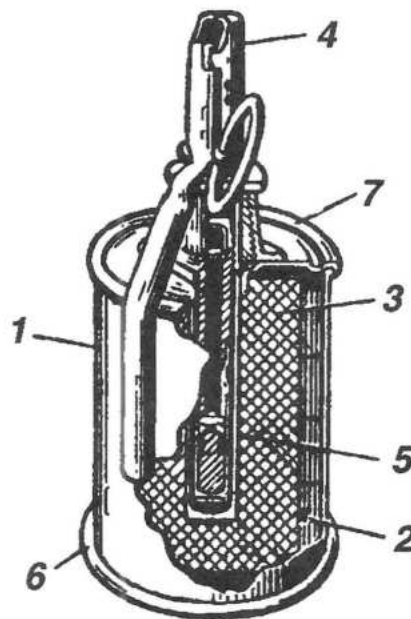


Figure 8. Construction of RG-42 fragmentation hand grenade:

- | | | |
|----------|-------------------|----------------------|
| 1 - body | 2 - metallic belt | 3 - explosive charge |
| 4 - fuse | 5 - fuse well | 6 - bottom |
| 7 - top | | |

14. The **grenade body** contains the explosive charge, metallic belt, and fuse well, and also forms the shrapnel when the grenade is detonated. The body is cylindrical, with a bottom and a top. The well with flange for joining the fuse to the grenade and for hermetic sealing of the explosive charge in the body is attached to the top of the grenade. During storage and carrying of the grenade, the well is covered by a plastic shipping plug or metal cap.

15. The **metallic belt** forms shrapnel during the grenade's detonation. It is wound in 3 to 4 layers inside the body, and its surface is scored in squares to increase the number of fragments.

16. The **explosive charge** fills the body and explodes the grenade into fragments.

17. The **UZRGM grenade fuse** (Figure 4) detonates the grenade's explosive charge.

The construction of the fuse and the function of the components and mechanisms of the grenade are indicated in paragraphs 8-11.

Chapter 3

NOMENCLATURE, COMBAT CHARACTERISTICS, AND CONSTRUCTION OF THE FRAGMENTATION HAND GRENADE F-1

Nomenclature and combat characteristics of grenade

18. The F-1 fragmentation hand grenade is a time-delay weapon designed to destroy enemy personnel primarily in defensive combat. The grenade can be thrown from various positions, but only from behind cover or from an armored personnel carrier or tank (self-propelled artillery). The bursting radius for lethal fragments of this grenade is approximately 200 meters. The average throwing range of the grenade is 34 to 45 meters.

The weight of a loaded grenade is 600 grams [21 ounces].

The burn time of the delay fuse is 3.2 to 4.2 seconds.

Construction of grenade

19. The F-1 fragmentation hand grenade (Figure 9) consists of the body, explosive charge, and fuse.

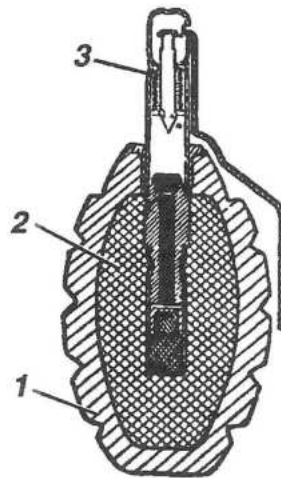


Figure 9. Construction of F-1 fragmentation hand grenade:

1 - body

2 - explosive charge

3 - fuse

20. The **grenade body** contains the explosive charge and fuse, and also forms the shrapnel when the grenade is detonated. The body of this grenade is cast iron, with longitudinal and transverse fissures along which the grenade normally breaks up into fragments. The upper portion of the body has a threaded opening for screwing in the fuse. During storage, transportation, and carrying of the grenade, a plastic plug is screwed into this hole.

21. The **explosive charge** fills the body and breaks the grenade into fragments.

22. The **UZRGM grenade fuse** (Figure 4) detonates the grenade's explosive charge. Its construction and the function of the grenade's components and mechanisms are described in paragraphs 8-11 (pages 60-62).

Chapter 4

NOMENCLATURE, COMBAT CHARACTERISTICS, AND CONSTRUCTION OF SHAPED-CHARGE ANTITANK GRENADE RKG-3

Nomenclature and combat characteristics of grenade

23. The RKG-3 shaped-charge grenade is an antitank grenade of directional action, designed to combat enemy tanks, self-propelled artillery pieces, armored personnel carriers and armored cars, and also destroy permanent and field defensive fortifications. This grenade can be thrown from various positions and only from behind cover. The average length of throw of the grenade is 15 to 20 meters.

The loaded grenade weighs 1070 grams [38 ounces].

The grenade detonates at the instant it strikes the target, and the jet of high-density and high-temperature gases that is formed penetrates the armor of modern tanks and other hard objects.

Construction of the grenade

24. The RKG-3 shaped-charge antitank hand grenade (Figure 10) consists of the body, handle, explosive charge, and fuse.

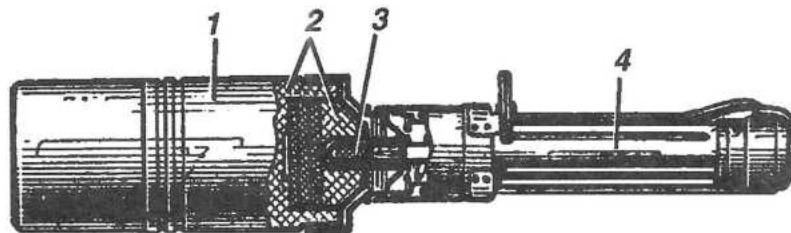


Figure 10. Construction of RKG-3 shaped-charge antitank hand grenade:

1 - body

2 - explosive charge

3 - fuse

4 - handle

25. The **grenade body** (Figure 11) is cylindrical, and contains the explosive charge and fuse. The body has a bottom; inside is the shaped cone; on the top is a screwed-on cover with fuse well. The upper portion of the cover ends in threads for screwing on the handle.

The exterior surface of the body is marked with throwing instructions and nomenclature.

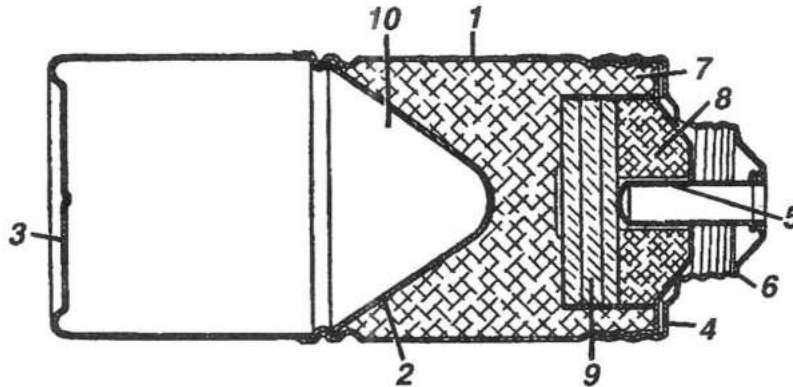


Figure 11. Grenade body (cross section)

- | | | |
|--------------------|--------------------------|----------------------|
| 1 - shell | 2 - shaped cone | 3 - bottom |
| 4 - top | 5 - well | 6 - threads |
| 7 - main charge | 8 - supplementary charge | 9 - cardboard gasket |
| 10 - shaped recess | | |

26. The **handle** (Figure 12) provides for ease in throwing the grenade and activating the striker mechanism. It consists of a body, movable sleeve with spring, deploying strip, pop-off cap with strip, and safety pin with ring.

The handle contains the striker mechanism, stabilizer, and safety assembly.

The handle body is hermetically sealed. It is closed on the front end by a fiber washer, and at the back by felt washers between the movable sleeve and cap.

The movable sleeve has threads for screwing the handle onto the top of the grenade body. On its lateral surface are ears with holes for the safety pin and two slots. The movable sleeve is joined with the deploying strip by these ears and the pin. The sprung end of the deploying strip is displaced in one of the slots, and the end of the strip of the pop-off cap with ball in the other.

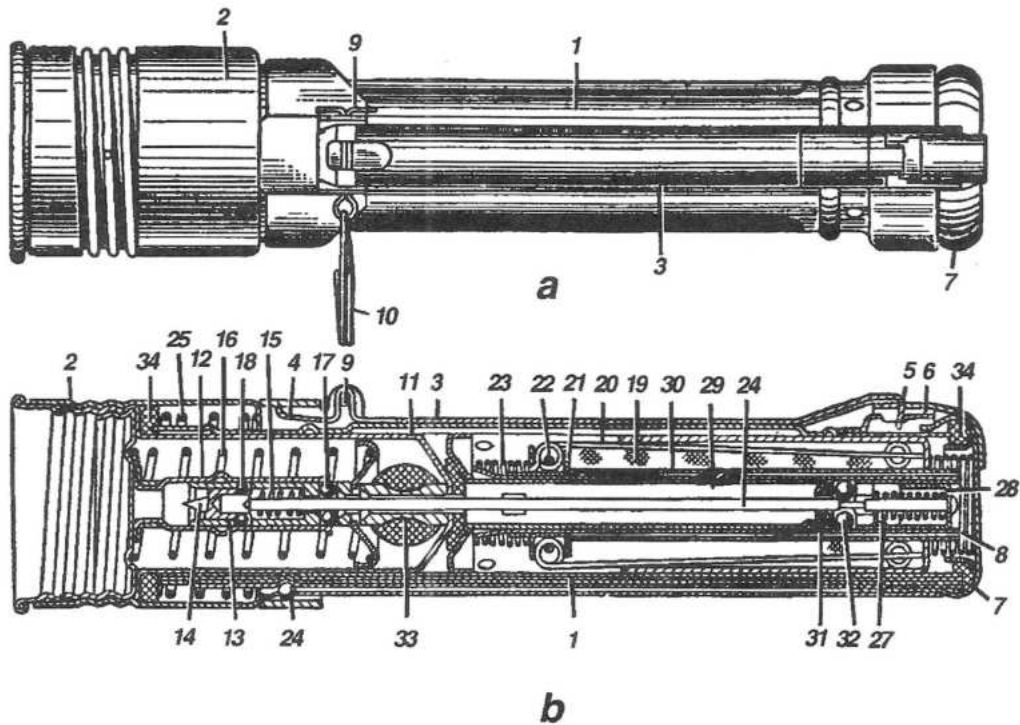


Figure 12. Handle:

	a - general view	b - cross section
1 - body	2 - movable sleeve	3 - deploying strip
	4 and 5 - sprung and folded ends of deploying strip	
6 - seal	7 - pop-off cap with strip	8 - cap spring
9 - safety pin	10 - ring	11 - striker mechanism body
12 - pipette with flange	13 - striker body	14 - striker
15 - operating spring	16 - double safety spring	17 - large ball
18 - small ball	19 - stabilizer	20 - stabilizer guy wire
21 - bushing	22 - ring	23 - stabilizer spring
24 - ball	25 - movable sleeve spring	26 - rod
27 - rod spring	28 - cap	29 - central tube
30 - movable tube	31 - nipple	32 - ball
33 - inertial weight	34 - gasket	

27. The **striker mechanism** (Figure 13) ignites the detonator primer of the fuse. It consists of a body, pipette with flange, striker body, operating and double safety spring, safety balls, and inertial weight.

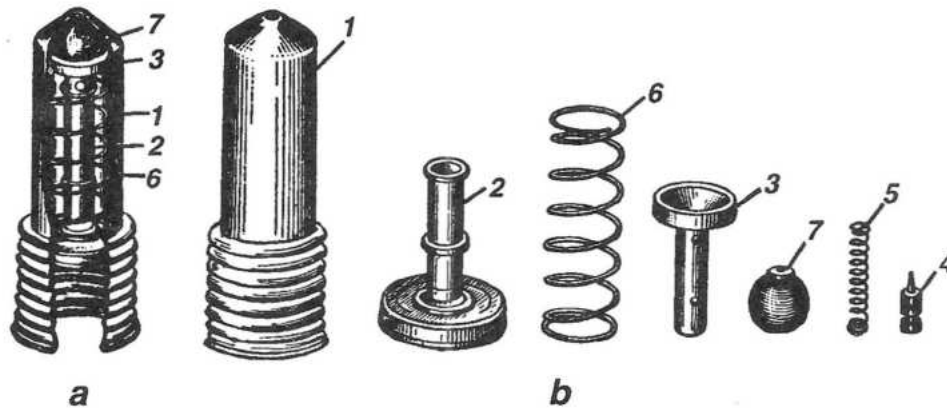


Figure 13. Striker mechanism:

- | | |
|---------------------|--------------------------|
| a - cross section | b - in disassembled form |
| 1 - body | 2 - pipette with flange |
| 4 - striker | 3 - striker body |
| 7 - inertial weight | 6 - double safety spring |
| | 5 - operating spring |

The striker body is contained in the pipette with flange and has four holes for the safety balls. Located inside the striker body are the striker and the operating spring. Two large safety balls hold the striker body in the pipette, and two small balls hold the striker in the striker body.

The double safety spring prevents the inertial weight from displacing while the grenade is in flight.

28. The **stabilizer** (Figure 14) guides the grenade in flight so as to present the grenade bottom [war-head] to the target. It consists of a cloth sleeve, four guy wires, bushing, ring, and spring.

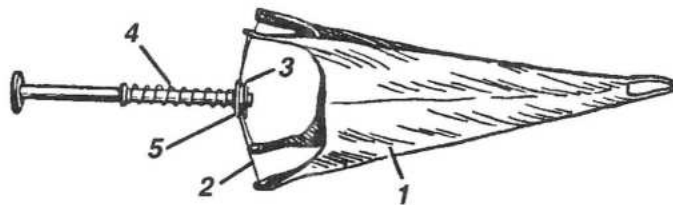


Figure 14. Stabilizer:

- | | | |
|------------------|--------------|-------------|
| 1 - cloth sleeve | 2 - guy wire | 3 - bushing |
| 4 - spring | 5 - ring | |

29. The safety system (Figure 12) includes four separate devices that ensure safety during handling of the grenade and in flight.

The first device—the safety pin—joins the movable sleeve with the deploying strip and ensures safety when handling the grenade. This safety is disabled by removal before throwing the grenade.

The second device ensures safety of the grenade in the event of an accidental blow if the safety pin has been removed. It consists of the strip of the pop-off cap with ball, movable sleeve, and its spring. This safety is disabled at the moment the grenade is thrown.

The third device ensures safety of the grenade after the throw (the protection afforded by the second safety has already expired) in the event of accidental strike against an obstacle located closer than one meter from the thrower. It consists of the rod with cap and spring, movable and central tubes, nipple, and two balls. The safety is disabled by the stabilizer after its deployment during flight of the grenade.

The fourth device—the double safety spring—ensures safety of the grenade during flight, holding the inertial weight from forward displacement.

30. The explosive charge (Figure 11) serves to penetrate armor (concrete) and destroy hard obstacles. The charge has a crater-shaped recess in its forward portion for the formation of a narrow jet of high density gases (several thousand atmospheres) during the explosion and to guide this jet to the armor. In addition, between the bottom of the body and the shaped charge is a free space (without explosive substance), that ensures the greatest effect of the grenade's armor penetration. The explosive charge consists of the main and supplementary charges, separated by a cardboard gasket.

31. The fuse (Figure 15) is of the instant-action type, and is designed to detonate the grenade's explosive charge. It consists of the case and bushing. The bushing contains the detonator primer, and the case holds the supplementary detonator.

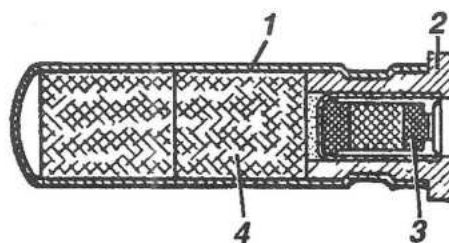


Figure 15. Fuse (cutaway):

1 - case

2 - bushing

3 - detonator primer

4 - supplementary detonator

Function of the grenade's components and mechanisms

32. Before throwing the grenade. Remove the grenade from the pouch, unscrew the handle, install the fuse in the body, and screw the handle on to stop. The striker is held by the small balls in the striker body, compressing the operating spring. The striker body is secured against forward movement by the large balls in the pipette with flange. The deploying strip is joined to the handle's movable sleeve by the safety pin, and to the pop-off cap by its bent end. Its sprung end is located in the slot of the movable sleeve. The ends of the safety pin are bent and hold the pin firmly in the handle.

33. Throwing the grenade. Grasp the grenade by the handle for throwing, pull the safety pin out, and throw the grenade at the target. The deploying strip and movable sleeve are disconnected when the pin is removed. During the [forward] motion of the arm during the throw, the grenade body and movable sleeve move away from the handle body, compressing the spring of the movable sleeve and freeing the ball and sprung end of the deploying strip (Figure 16).

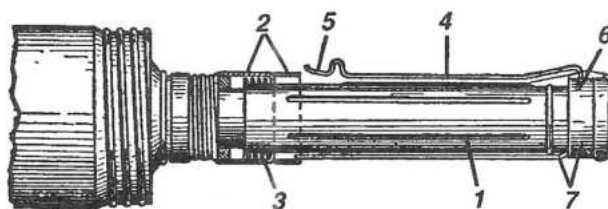


Figure 16. Position of components and mechanisms during the forward motion of the arm for throwing:

- | | | |
|----------------------------|---|---------------------------|
| 1 - handle body | 2 - movable sleeve | 3 - movable sleeve spring |
| 4 - deploying strip | 5 and 6 - sprung and bent ends of deploying strip | |
| 7 - pop-off cap with strip | | |

At the moment the grenade separates from the hand, the handle body moves back toward the grenade body from the force of the movable sleeve spring and takes up its previous (before throwing) position. Under pressure from its spring, the pop-off cap is ejected from the handle, rotates the deploying strip and, coming unattached from it, is separated from the handle (Figure 17).

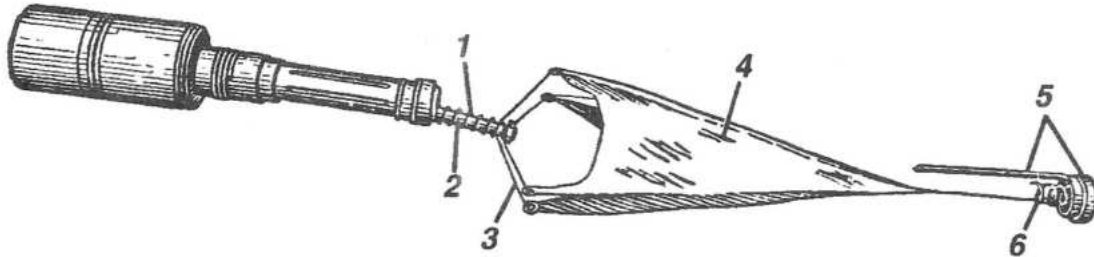


Figure 17. Grenade during flight:

- | | | |
|-----------------------|----------------------------|----------------|
| 1 - stabilizer spring | 2 - movable tube | 3 - guy wires |
| 4 - cloth sleeve | 5 - pop-off cap with strip | 6 - cap spring |

The stabilizer spring ejects the stabilizer from the handle. The stabilizer inflates from the pull of the guy wires and the force of air resistance, and in turn, it pulls on the movable tube (Figure 17). The balls of the third safety that are holding the rod are freed. Under the pressure from its spring, the rod comes out of the striker (the third safety has now expired) and frees the large balls, and along with them the grenade body. The double safety spring and friction prevent forward movement of the inertial weight and of the striker body. The small balls, positioned in the walls of the striker body and striker, prevent forward movement of the striker.

34. Upon contact with the target (obstacle). At the moment the bottom or side of the grenade body strikes the target (obstacle) the double safety spring is compressed by the weight of the inertial weight, and the striker body moves forward until the small balls are no longer lodged in the bore of pipette with flange. The striker is now free, and moves sharply forward under the impulse of the operating spring, denting the detonator primer of the fuse. It ignites and causes the instant detonation of the grenade.

35. The nomenclature, construction, and function of the components and mechanisms of later variants of the RKG-3E and RKG-3EM shaped-charge grenade are the same as for the RKG-3 grenade.

Chapter 5

HANDLING, MAINTENANCE, AND STORAGE OF GRENADES

36. Grenades arrive at troop units in wooden crates. The crates contain grenades, handles, and fuses, all packed separately in metal boxes. A knife is used to open the boxes. The sides and top of the crate bear markings that indicate the quantity of grenades in the crate, their weight, nomenclature of the grenades and fuses, number of the manufacturing facility, lot number of the grenades, year of manufacture, and warning markings.

37. Store all supplies of grenades and fuses, except those being carried, in the factory packing.

38. Grenades are carried by soldiers in grenade pouches (Figure 18). Fuses are carried in the pouches separately from the grenades, with each fuse wrapped in paper or a clean cloth. In tanks (armored troop carriers, self-propelled artillery pieces) grenades and fuses are stowed separately in pouches.

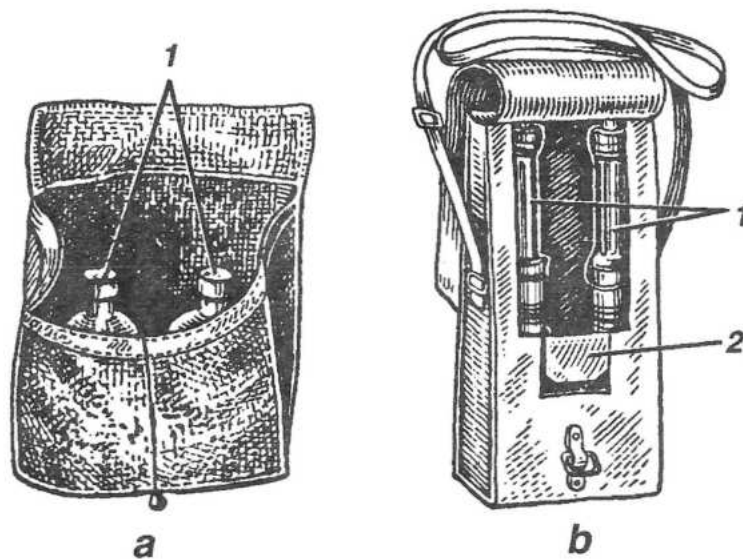


Figure 18. Grenade pouches:

a - with fragmentation grenades

1 - grenades

b - with antitank grenades

2 - pocket for fuses

39. Inspect the grenades and fuses before placing them in the grenade pouch. During this inspection, ensure that grenade body does not have deep dents or corrosion; the fuse well has not been obstructed, and its inner walls have not been punctured; the fuse is clean and is not corroded or creased; the ends of the safety pin are bent and the pin is not cracked at the bends. **Fuses with cracks or green deposits should not be used.**

40. Protect grenades and fuses from heavy jolts, blows, fire, dirt, and moisture. If the grenades become dirty or wet, carefully wipe them at the first opportunity and dry them in the sun or in a warm place, but not near a fire. The drying grenades must be kept under observation.

41. Grenades that are being stored for a long period of time in grenade pouches should be inspected periodically. Unserviceable grenades and fuses are turned in to the ammunition supply facility for destruction.

42. Grenades can be loaded (the fuse installed) only immediately before throwing.

43. Service grenades should be issued only to those trained in handling them.

It is forbidden to disassemble service grenades and repair faults in them, to carry grenades outside of a pouch (hanging by the ring of the safety pin), and also to touch unexploded grenades.

Training grenades, training-simulation grenades, and posters are used to study the construction of grenades, the instructions concerning their employment, and methods of throwing.

Trainees who have successfully completed exercises in the throwing of training and training-simulation grenades are permitted to throw service grenades.

44. Observe the following safety measures during training for throwing service grenades:

- 1) trainees should be wearing steel helmets;
- 2) inspect grenades and fuses before loading; in the event a fault is detected, report it to the commander;
- 3) conduct the throwing of fragmentation defensive and antitank grenades from a window or from behind a cover that cannot be penetrated by fragmentation, under the supervision of an officer;
- 4) when one trainee is throwing several grenades, each subsequent grenade should be thrown not less than five seconds after the detonation of the grenade previously thrown;
- 5) if a grenade has not been thrown (the safety pin has not been removed), unload it only on command and under the direct observation of the commander;
- 6) account for unexploded grenades and note the location of their fall with **red flags**; upon completion of throwing, destroy unexploded grenades in accordance with the instructions laid down in the *Guidance for Storage and Protection of Artillery Armaments and Ammunition*; the unit commander organizes the demolition of grenades (fuses);
- 7) cordon off the grenade-throwing range to a radius of not less than 300 meters;
- 8) personnel who are not involved in throwing grenades should be under cover or at a safe distance from the firing line (not closer than 350 meters);
- 9) mark the ready position for grenade throwing with white flags, and the firing line with red flags;
- 10) establish the grenade and fuse issue point not closer than 25 meters from the ready position.

Part Two

METHODS AND INSTRUCTIONS FOR THROWING GRENADES

General instructions

- 45.** The throwing of grenades in exercises and training is conducted on command of the commander, and in combat—either on command or independently, depending on the situation.
- 46.** During the throwing of service grenades in exercises and training, observe safety measures that will preclude injury to the thrower or nearby soldiers. After throwing an offensive grenade on the move, prepare for firing and continue movement without stopping. Quickly seek cover after throwing a defensive or antitank grenade, and quickly prepare for firing or begin movement after the explosion. During actions from armored troop carriers, the thrower prepares for firing through the firing port after the explosion.
- 47.** Grenades can be thrown from various positions in combat: standing, kneeling, prone, and also while moving in an armored troop carrier or dismounted (only offensive grenades).
- 48.** To throw a grenade, select a location and position that will ensure the free flight of the grenade to the target (there are no obstacles in the path, such as tree branches, high grass, wire, and so on).
- 49.** The grenade must be thrown energetically, giving it the most favorable flight trajectory.

Chapter 6

METHODS AND INSTRUCTIONS FOR THROWING FRAGMENTATION HAND GRENADES

50. Throwing a grenade consists of two steps: preparation for throwing (loading the grenade and taking up a position) and the throw itself.

51. Loading a grenade is accomplished on the command, **“Prepare grenades,”** and in combat, in addition to this command, by the soldier independently.

To load a grenade, remove the grenade from the grenade pouch, unscrew the shipping plug from the fuse well, and screw in the fuse (Figure 19). The grenade is ready for throwing.

52. Throwing the grenade is accomplished on the command, **“With a grenade—fire,”** or **“At the trench, with grenades—fire,”** and in combat, in addition to a formal command, by the soldier independently.

To throw a grenade, the thrower must:

- grasp the grenade in the hand and tightly press the release lever to the grenade body with the fingers;
- continuing to press the release lever tightly, with the other hand squeeze (straighten) the ends of the safety pin and pull it from the fuse by its ring (Figure 20);
- extend the arm back and throw the grenade at the target; after throwing a defensive grenade, take cover.

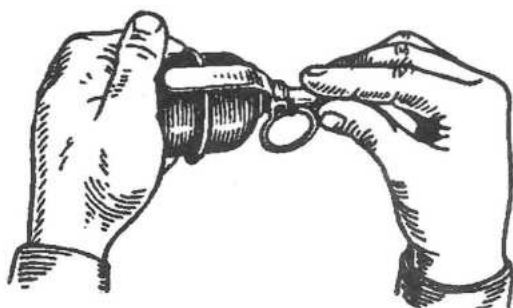


Figure 19. Screw in the fuse



Figure 20. Pull out the safety pin

During this time, the thrower's personal weapon should be maintained in a position that will ensure rapid preparation for firing (in the left hand, slung across the chest, on the trench parapet, and so on).

53. To throw the grenade from the standing position (Figure 21), the thrower must face the target. Grasping the grenade in the right hand (left hand for left-handed soldiers), and the weapon in the left (right) hand, pull out the safety pin. Take one step to the rear with the right leg, bending it at the knee, and, rotating the body to the right, swing the right arm down and to the rear. Quickly straightening the right leg and rotating the chest toward the target, throw the grenade, bringing it up over the shoulder and releasing it with an additional flip of the wrist. At the moment of the throw, shift the weight of the body to the left leg and draw the weapon [in the opposite hand] rearward.

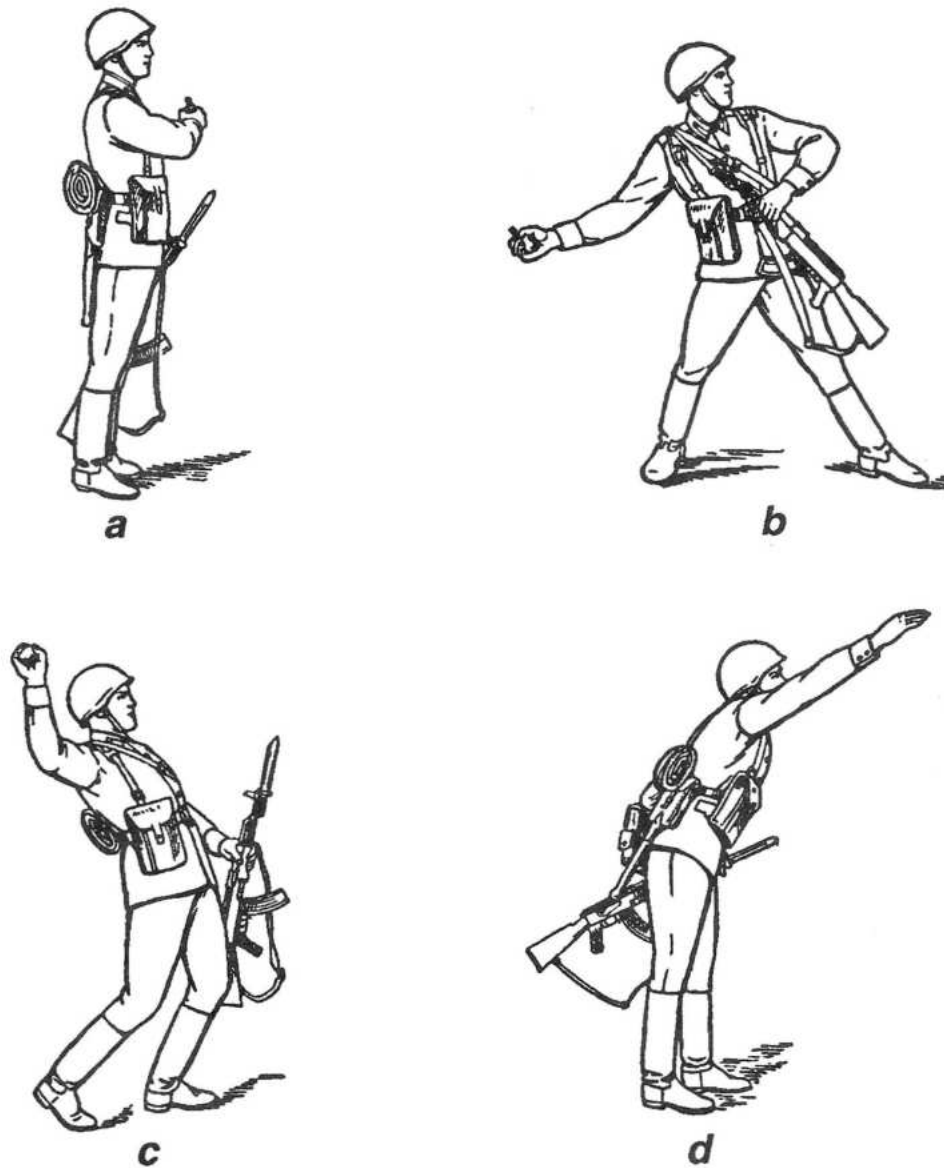


Figure 21. Throwing the grenade from the standing position:

a, b, c, d - sequential actions

54. To throw the grenade from the **kneeling position** (Figure 22), first take up a kneeling firing position. Holding the grenade in the right hand, and the weapon in the left, pull out the safety pin. Draw the grenade back, bending the body to the rear and rotating it to the right. Lift up and throw the grenade, bringing it over the shoulder and sharply leaning toward the left leg at the end of the throw.

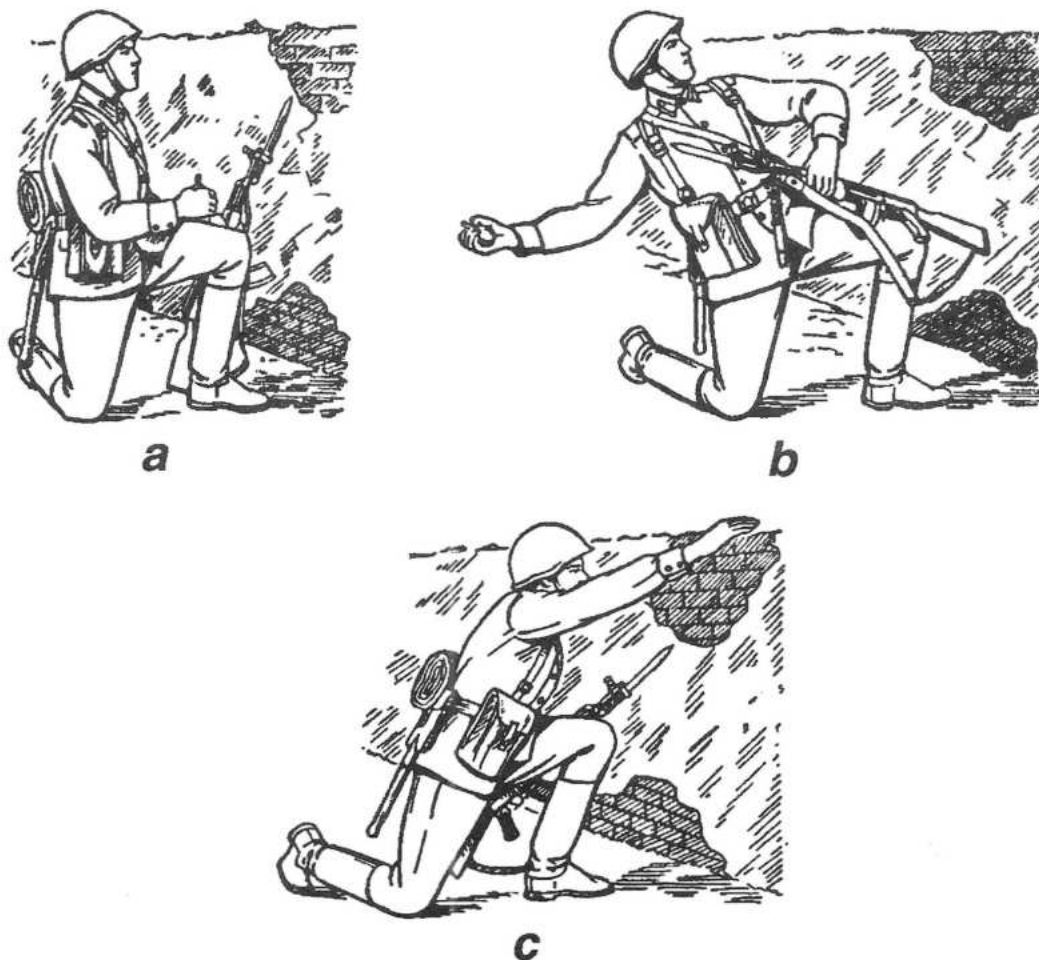


Figure 22. Throwing the grenade from the kneeling position:

a, b, c - sequential actions

55. To throw a grenade from the **prone position** (Figure 23), take up a prone firing position, place your weapon on the ground and pick up the grenade in the right hand. Pull out the safety pin with the left hand and push away from the ground with both arms. Moving the right leg slightly to the rear, get up on your left knee (keeping this knee in place). Simultaneously bring your throwing arm back. Straightening your right leg, rotate the chest toward the target and throw the grenade at the target while falling forward. Pick up your weapon and prepare for firing.

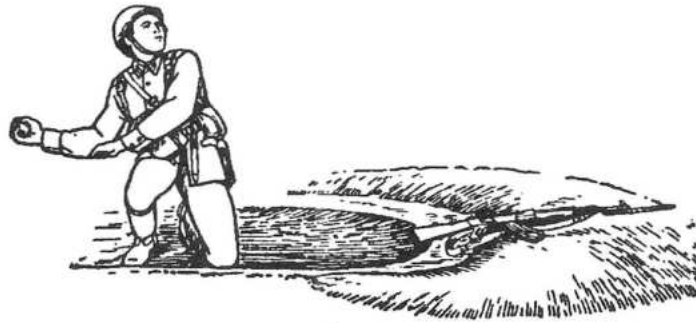
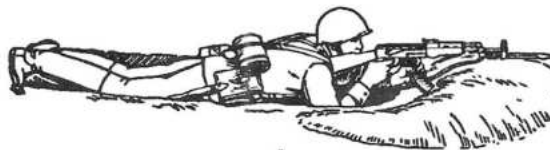
*a**b**c**d*

Figure 23. Throwing the grenade from the prone position:

a, b, c, d - sequential actions

56. To throw the grenade **while moving** at a walk or running (Figure 24), you must do the following. Holding the grenade in the right hand, with arm slightly bent, and your weapon in your left hand, pull out the safety pin. Drop the throwing hand forward and downward as the left foot hits the ground. On the second step (as the right foot hits the ground), continue the arm movement in a downward and rearward arc and simultaneously rotate the body to the right. On the third step (left foot again), with the left foot pointed toward the target and the right knee slightly bent, complete the rotation of the body and arm swing. Using rapid movement and adding the strength of the leg to the effort, throw the grenade by bringing the arm up over the shoulder.

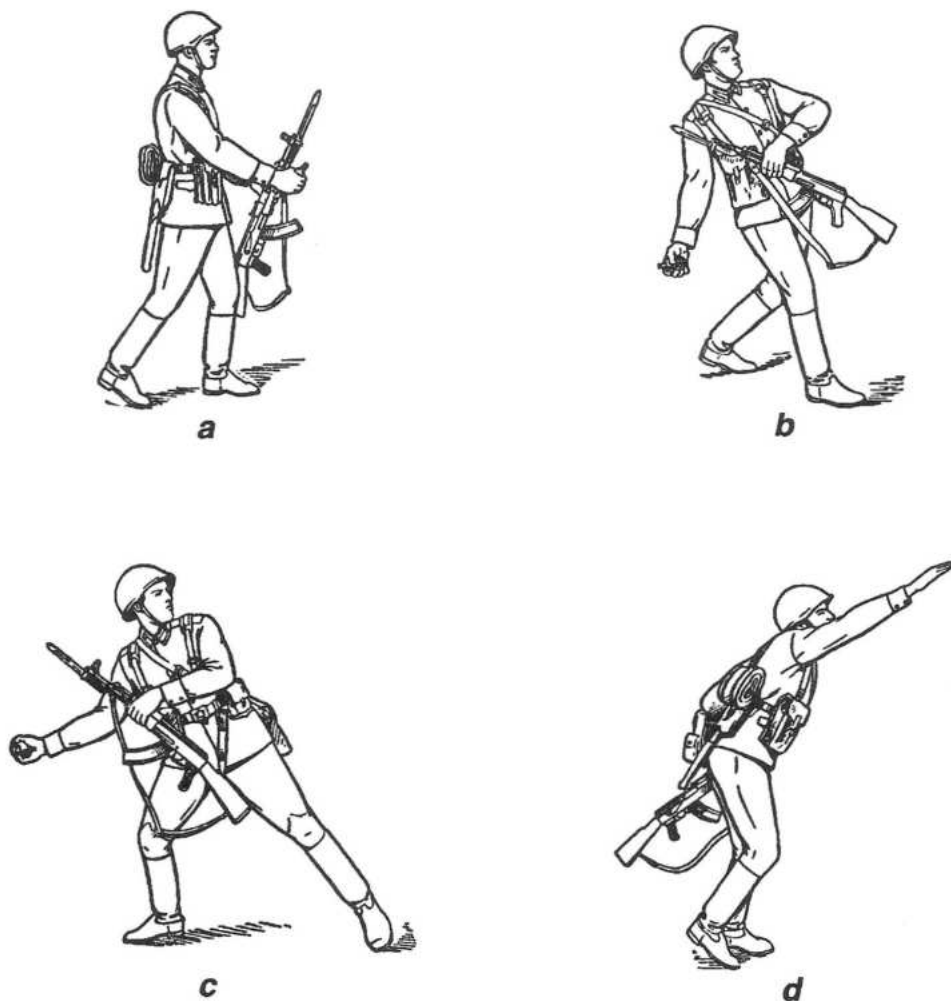


Figure 24. Throwing the grenade while moving:

a, b, c, d - sequential actions

57. To throw the grenade from an armored troop carrier (Figure 25):

Remaining seated or having placed both feet on the floor or the right leg on the floor, with the left knee on the seat, hold the grenade in the right hand, your weapon in your left hand, and pull the safety pin. Grasping the side of the vehicle with the left hand that is holding your weapon, stand up and simultaneously swing the grenade rearward, leaning your body back and rotating it to the right. Bringing the grenade up over your shoulder and leaning sharply forward, throw it at the target. Take cover behind the side of the armored troop carrier. If the armored troop carrier has a roof, you will have to open the roof hatch before throwing the grenade, and close it afterward.

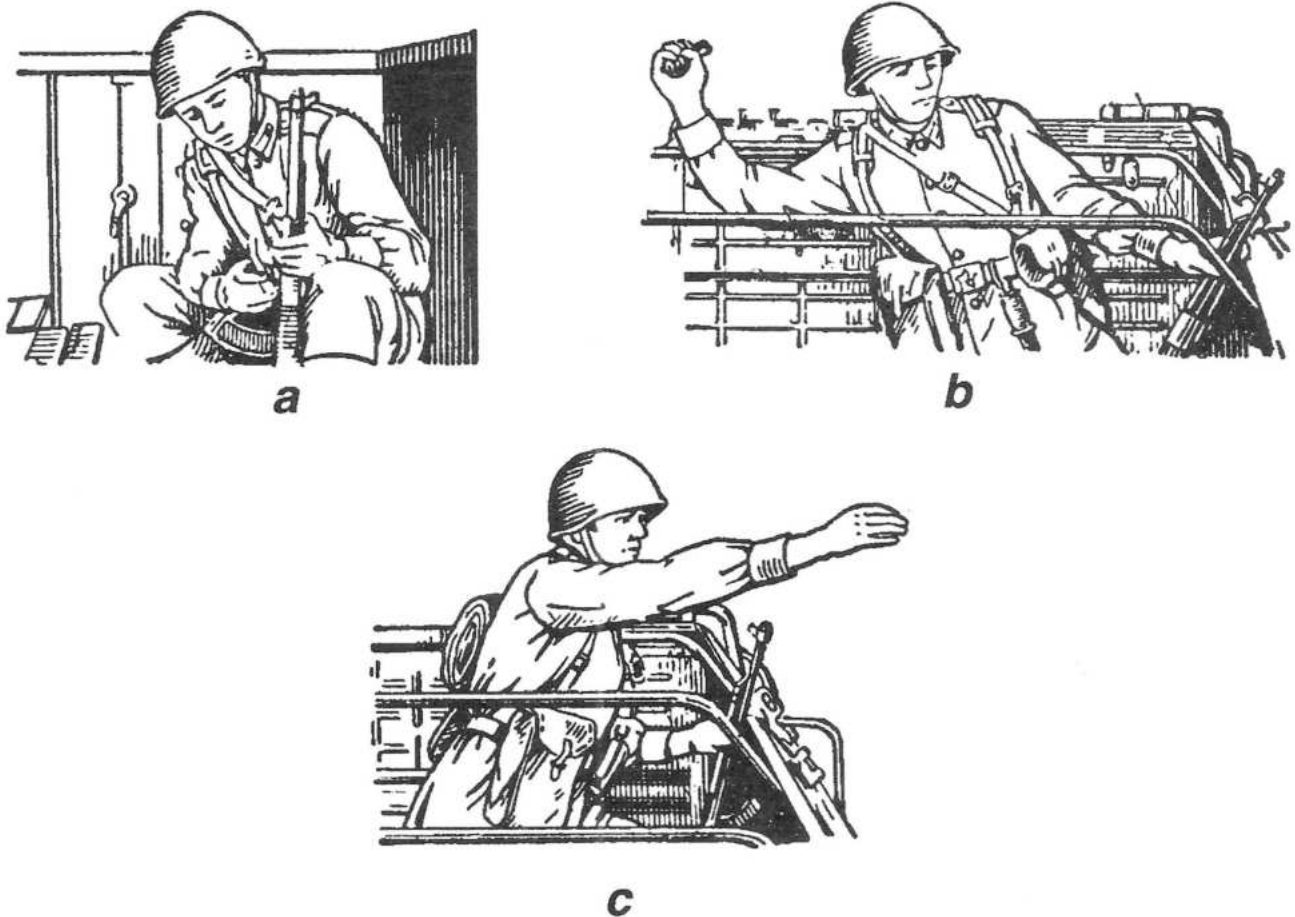


Figure 25. Throwing the grenade from an armored troop carrier:

a, b, c - sequential actions

If the grenade is to be thrown from a moving armored troop carrier, then you must consider a correction for the movement of the vehicle during the selection of direction and timing of the throw.

To throw the grenade forward (in relationship to route of the armored troop carrier) or to the rear, the distance of the grenade's flight is increased (or decreased). Therefore you must throw the grenade not at the target, but at a point (Figure 26) located some 7 to 10 meters closer to (farther than) the target, if the range to the target is 30 to 35 meters.

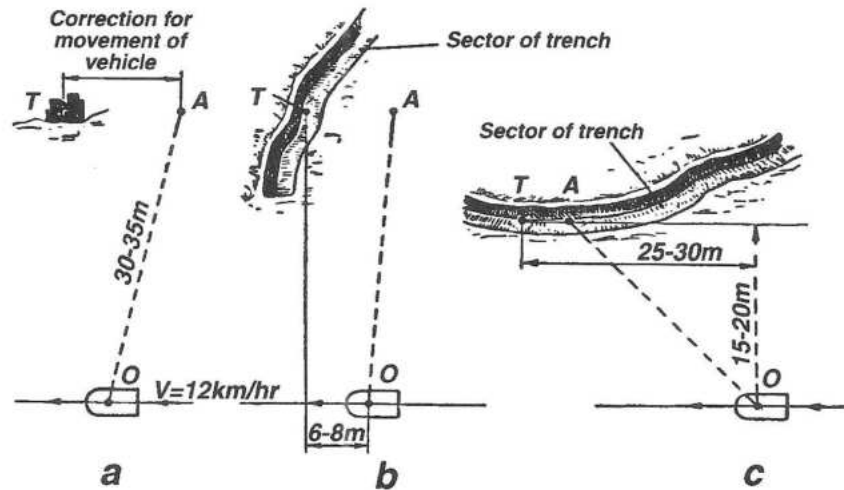


Figure 26. Selection of direction and timing for throwing grenade from armored troop carrier:

- a, b, c - calculating correction for movement
- b - at a target in a trench sited perpendicular to the direction of movement
- c - at a target in a trench sited parallel to the direction of movement.
- T - target
- O - armored troop carrier
- A - point to which the grenade is thrown;
- OA - direction and distance of throw

To defeat targets that are approximately perpendicular to the direction of the armored troop carrier's movement and at a distance of 30 to 35 meters, the grenade must be thrown at the range to the target, but 7 to 10 meters to the right (left) when thrown from the right (left) side. If the grenade is being thrown at a closer target and at a more acute angle to the direction of the armored troop carrier's movement, use about one-half of the correction, that is, 3 to 5 meters.

It is more effective to throw a grenade from a moving armored troop carrier at targets in a trench (Figure 26):

- situated perpendicular to the path of movement, when the armored troop carrier is approaching the trench or will cross it (not more than 6 to 8 meters);
- situated parallel to the path of movement when the armored troop carrier is approaching the target at an average throwing range, and its path passes 15 to 20 meters from the trench.

58. To throw a grenade **from a tank** (self-propelled artillery piece), pick up the loaded grenade in the right hand and turn toward the target. Remove the safety pin, unlock the hatch, and hold the hatch cover with the free hand. When ready, open the hatch cover and throw the grenade through the hatch opening. Then quickly close the hatch cover and lock it.

59. To throw the grenade from a trench or firing position (Figure 27):

Place your weapon on the parapet, pick up the grenade in the right hand and remove the safety pin. Draw the right leg back as far as possible, bending slightly at the waist and bending both legs slightly. Draw the right arm with the grenade upward and backward as far as possible. Putting your weight on your left leg, straighten up sharply and throw the grenade at the target, then seek cover in the trench (firing position).

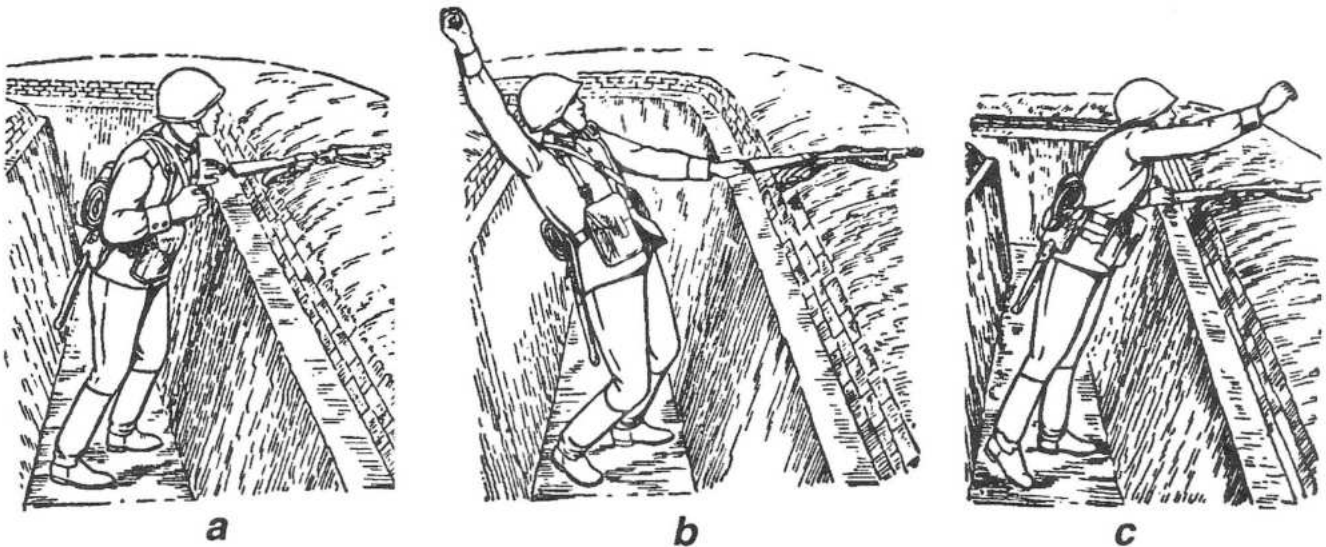


Figure 27. Throwing the grenade from a trench or firing position:

a, b, c - sequential actions

60. To defeat enemy personnel located in a firing position (trench) or on open ground, throw the grenade at an angle of approximately 35 to 45° to the horizon, so that the grenade falls almost vertically and is less likely to roll to the side.

61. To throw the grenade through a window or door of a building (gaps in walls), you must achieve a direct hit. Therefore, the flight trajectory of the grenade should be aimed straight at the target. The strike of a grenade in a window or door of a building is achieved by systematic and prolonged training. The thrower must take cover after hurling the grenade, because a miss might result in injury from the grenade shrapnel.

62. If the grenade has not been thrown and the safety pin has not been removed from the fuse, it can be unloaded under the supervision of the commander.

On the command **“Unload grenade,”** unscrew the fuse, wrap it in cloth (paper), and place it in the grenade pouch. Screw the shipping plug into the fuse well and place the grenade in the pouch.

Chapter 7

METHODS AND INSTRUCTIONS FOR THROWING THE SHAPED-CHARGE HAND GRENADE

63. Throwing a shaped-charge hand grenade consists of two steps: preparation for throwing (loading the grenade and taking up a position) and the throw itself.

64. Loading the grenade is accomplished on the command, **“Prepare shaped-charge grenades,”** and in combat, in addition to this command, by the soldier independently.

Upon this command:

- grasp the grenade in the left hand, unscrew the handle from the body and place it in the pouch or on a clean surface;
- install the fuse in the top of the grenade body (Figure 28);
- screw the handle into the top of the grenade body to stop; the grenade is now ready for throwing.

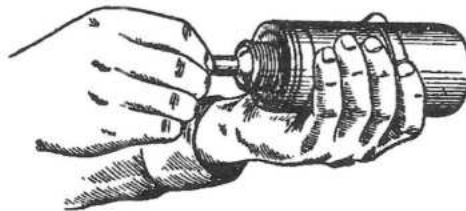


Figure 28. Installing the fuse

65. Throwing shaped-charge grenades is accomplished on the command, **“At the tank, with shaped-charge grenades, fire,”** or independently as the tank approaches the range for grenade throwing.

To throw a grenade:

- grasp the grenade in the right hand (or left for left handers) by the handle so that the deploying strip is held tightly to the handle by the fingers;
- holding the grenade in the indicated position, straighten the ends of the safety pin, and pull it from the handle by its ring with a finger of the left hand (Figure 29);
- extend the arm back and energetically throw the grenade at the target; then immediately take cover.

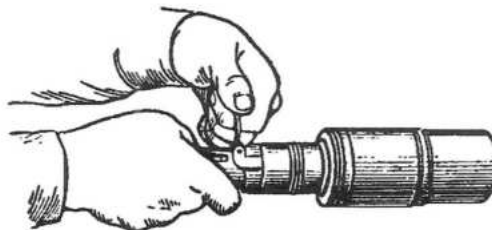


Figure 29. Pulling out the safety pin

66. To throw the grenade **from a fighting position from a standing or kneeling position** (Figure 30), place your weapon on the forward wall or parapet of the position, grasp the grenade in the right hand, and pull out the safety pin. Bending at the waist and rotating the body to the right, draw the arm with the grenade all the way back. Leaning with the left arm on the position parapet, sharply straighten the body and energetically throw the grenade at the target, giving it a flat trajectory.

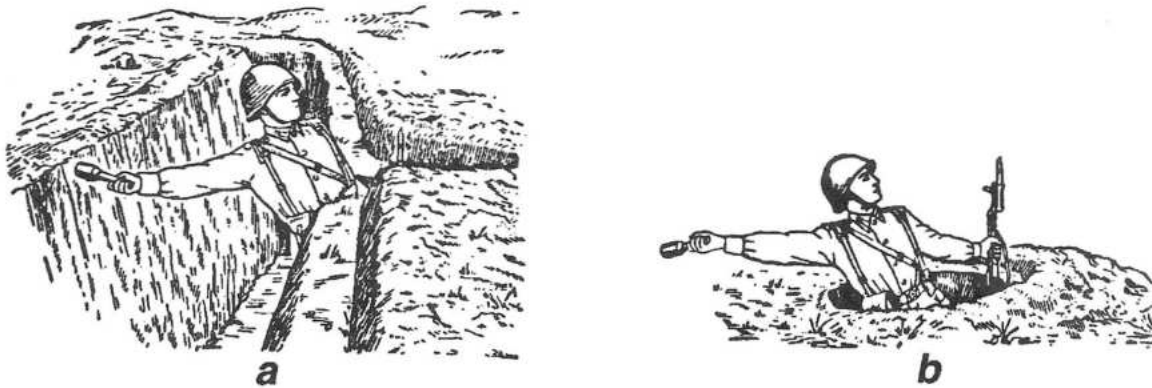


Figure 30. Throwing the grenade from a fighting position:

a - from a standing position

b - from a kneeling position

67. To throw the grenade from the kneeling position, raise up on the left knee at the moment of the throw.

68. In a cross wind, it is necessary to take into consideration the lateral deviation of the antitank grenade from the line of throw. When throwing the grenade at a moving target, allow some lead for the target's movement in order to achieve a direct hit on the target. The lead at a flanking moving tank should be one-half the tank's length, that is, throw the grenade at the front edge of the tank.

69. If the grenade has not been thrown, it is unloaded under the supervision of a commander.

On the command, "**Unload shaped-charge grenade,**" install the safety pin (if it has been removed) and bend its ends. Unscrew the handle from the grenade body, remove the fuse from the fuse well, wrap it in a cloth (paper), and place it in the pocket of the pouch. Screw the shipping plug into the top hole of the grenade and place it in the pouch.

Appendix I

BASIC COMBAT CHARACTERISTICS OF HAND GRENADES

Grenade type	RGD-5	RG-42	F-1	RKG-3
Nature of grenade's combat effect	offensive	offensive	offensive	antitank
Principle of action of grenade mechanism	fragmentation	fragmentation	fragmentation	directed shaped charge
Burn time of ignition fuse	time-delay 3.2 - 4.2 sec	time-delay 3.2 - 4.2 sec	time-delay 3.2 - 4.2 sec	contact instantaneous
Lethal fragmentation radius	up to 25 m	up to 25 m	up to 200 m	
Weight of loaded grenade	310 g [11 oz.]	420 g [15 oz.]	600 g [21 oz.]	1070 g [38 oz.]
Average range of throw	40-50	30-40 m	35-45 m	15-20 m

Appendix 2

TRAINING-SIMULATION HAND GRENADES

Nomenclature of grenades

1. Several training-simulation grenades are used in combat training of soldiers of the Soviet Army: URG-N (*uchebnaya ruchnaya granata nastupatel'naya* [training hand grenade-offensive], Figure 1a), URG (*uchebnaya ruchnaya granata oboronitel'naya* [training hand grenade-defensive], Figure 1b), and UPG-8 (*uchebnaya protivotankovaya granata* [training antitank grenade], Figure 1c).

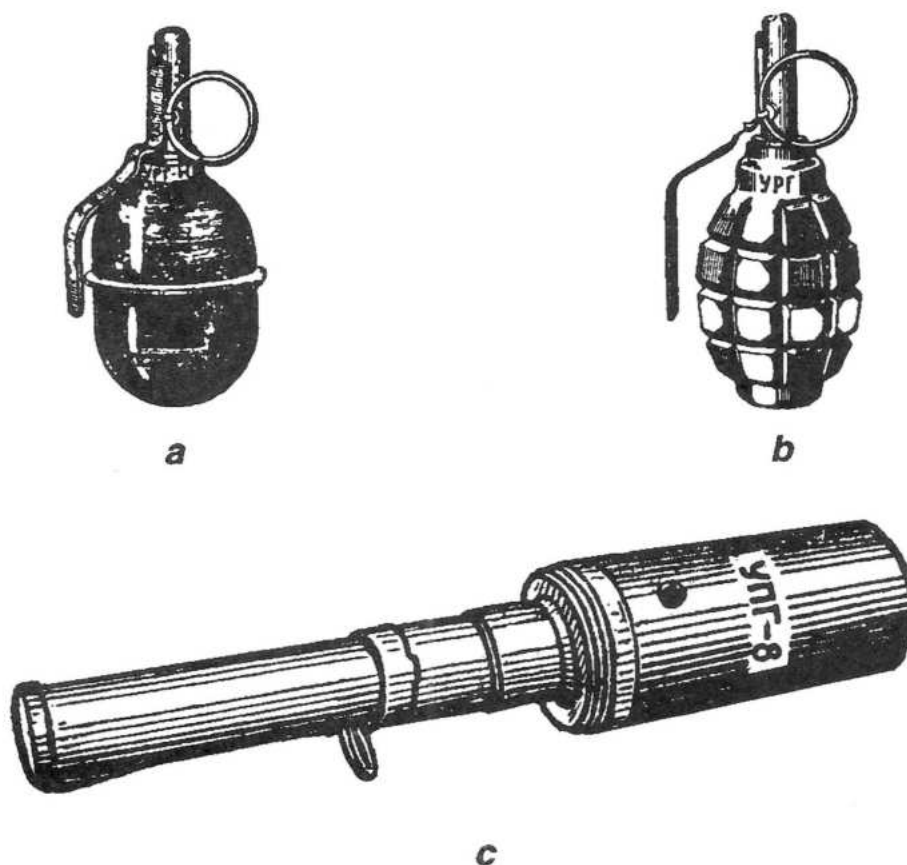


Figure 1. General view of training-simulation hand grenades:

a - URG-N

b - URG

c - UPG-8

2. Training-simulation grenades are intended for training soldiers in the methods and instructions for throwing hand grenades. In shape, weight, and handling rules, they do not differ from service grenades. But they only imitate the detonation of service grenades by sound and smoke effect when used.

Training-simulation grenades can be re-used.

Construction of training-simulation grenades URG-N and URG

3. The training-simulation grenade URG-N (URG) consists of a body and a simulation fuse.
4. The body of the RGD-5 fragmentation hand grenade serves as the **body of the URG-N grenade**. The body of the F-1 fragmentation hand grenade serves as the **body of the URG grenade**.
A hole has been made in the bottom portion of the body to strengthen the sound effect during the explosion of the simulation fuse, and for escape of the propellant gases.
For the purpose of differentiating training from service grenades, their bodies are painted black and bear markings. In addition, the URG has a longitudinal and transverse white stripe.
5. The **simulation fuse** (Figure 2) consists of a striker mechanism, an adapter bushing, and the simulation component.

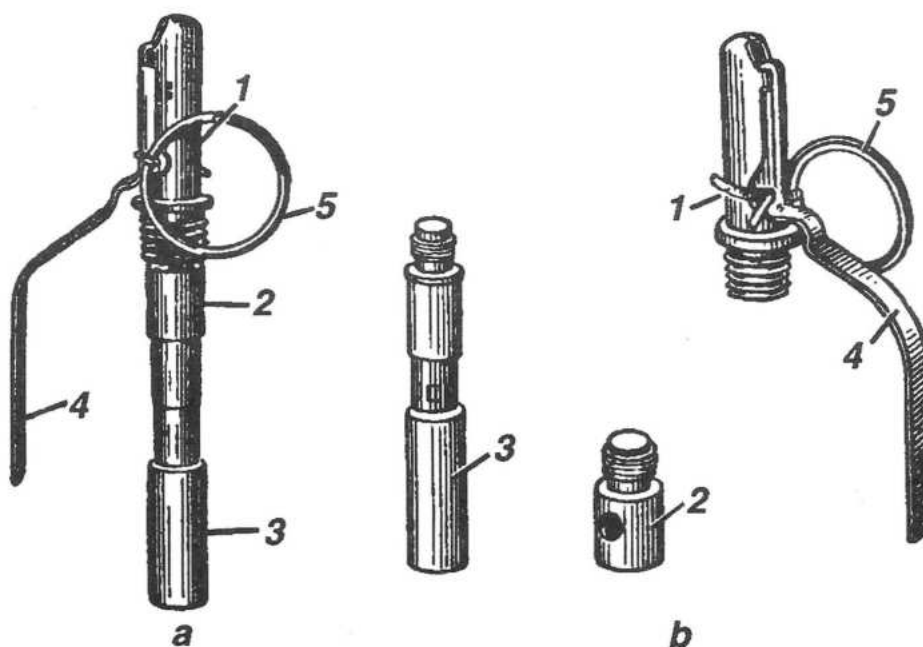


Figure 2. Simulation fuse:

- | | |
|-----------------------|--------------------------|
| a - assembled view | b - disassembled view |
| 1 - striker mechanism | 2 - adapter bushing |
| 4 - release lever | 3 - simulation component |
| | 5 - safety pin ring |

The **striker mechanism** is essentially the same as the striker mechanism of the UZRGM fuse. It differs only in that it has a long striker.

The **simulation component of the fuse** (Figure 3) serves to imitate the sound and smoke effect of the detonation of a service grenade. It consists of the same components as the UZRGM fuse, except that a longer case containing a smoke charge has been tightly installed in place of the detonator primer on the time-delay bushing.

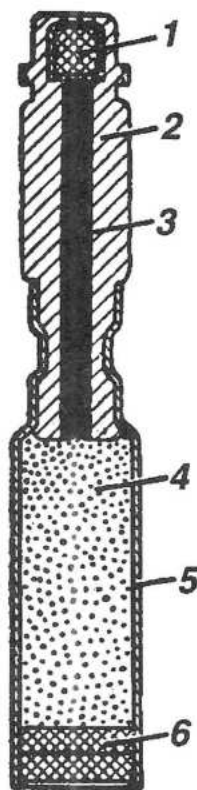


Figure 3. Simulation component of fuse (cutaway):

- | | | |
|--------------------|------------------------|---------------------|
| 1 - igniter primer | 2 - time-delay bushing | 3 - time-delay fuse |
| 4 - smoke charge | 5 - case | 6 - wad |

6. All components of the training-simulation grenades, except the striker and simulation component, can be used repeatedly.

7. A drift (Figure 4), issued on a basis of one per four grenades, is used to reload the simulation fuse.



Figure 4. Drift for reloading the simulation fuse:

1 - channel for striker

2 - hole

The function of components and mechanisms of the imitation fuse are analogous to the function of the UZRGM fuse.

Preparation of URG-N and URG training-simulation grenades for throwing, methods and instructions for throwing

8. Observe the instructions that govern service grenades for handling and throwing training-simulation grenades.

9. Before stowing the grenades in the grenade pouch, it is necessary to inspect the body and fuse components, and then assemble the fuse. This task involves joining (screwing in) the simulation component to the striker mechanism.

For repeated throwing of the grenade:

- remove the expended fuse from the grenade body;
- grasp the fuse in the left hand and remove the simulation component;
- remove the adapter bushing, being careful not to lose the operating spring and washer;
- grasp the new striker, insert its point in the drift hole, and place the washer and operating spring on the striker; insert the assembled components together with the drift into the channel of the striker mechanism until the head of the striker passes through the hole of the guide washer;
- not releasing the drift, insert the release lever fork into the recess of the striker head and press it to the striker mechanism pipette; insert the safety pin into the hole of the lever and pipette and bend its ends;
- remove the drift, screw in the adapter bushing and new simulation fuse component.

10. After five to seven throws of a training-simulation grenade, the hole for passage of the striker in the adapter bushing of the fuse should be cleaned of powder residue.

11. The methods and instructions for throwing URG-N and URG training-simulation grenades are the same as the methods and instructions for throwing service grenades. Training-simulation grenades can be used in place of service grenades in tactical exercises and war games.

Construction of training-simulation UPG-8 antitank grenade

12. The UPG-8 training-simulation antitank grenade consists of the body, handle, and simulation fuse.
13. Secured on the bottom and top of the **body** (Figure 5) is a barrel. The end of the barrel that extends from the body has: inside—a chamber for containing the fuse, on the outside—threads for screwing on the handle. The middle portion of the barrel has two holes for escape of propellant gases in the event the grenade bottom strikes soft soil.

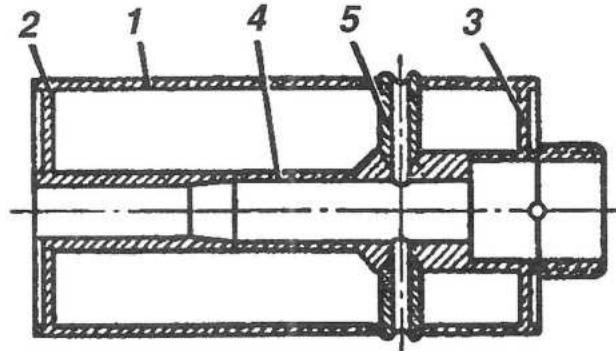


Figure 5. Grenade body (cross section):

- | | | |
|------------|---------------------------------|---------|
| 1 - casing | 2 - bottom | 3 - top |
| 4 - barrel | 5 - pipette and holes in barrel | |

14. The **handle** (Figure 6) facilitates throwing the grenade. It consists of the handle body, striker mechanism, three safeties, and the stabilizer.

All the components and mechanisms of the handle are contained in its body.

The **striker mechanism** consists of the stop bushing, point, striker body, inertial weight, threaded bushing, stop washer, safety spring, stop screws, and counterscrew.

The first safety—the safety pin, holds the deploying strip to the handle body, which ensures safety during handling of the grenade.

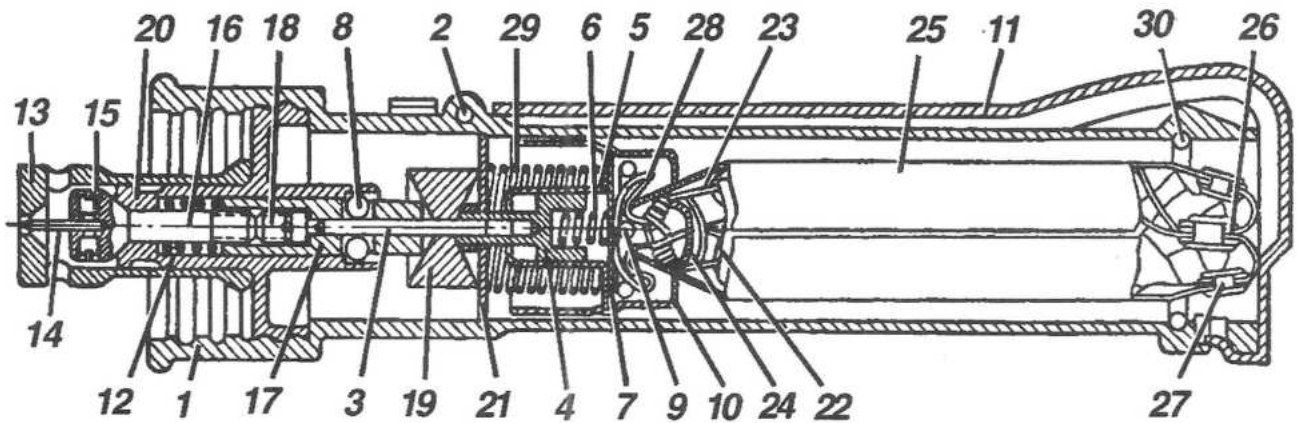


Figure 6. Handle (cross section):

- | | |
|------------------------|---|
| 1 - body | 2 - hole for safety pin |
| 3 - rod | 4 - rod head |
| 5 - bushing | 6 - second safety spring |
| 7 - washer | 8 - ball |
| 9 - loop | 10 - second safety body |
| 11 - deploying strip | 12 - safety spring |
| 13 - stop bushing | 14 - point |
| 15 - stop screw | 16 - striker head |
| 17 - striker body | 18 - counterscrew |
| 19 - inertial weight | 20 - threaded bushing |
| 21 - stop washer | 22 - stabilizer |
| 23 - guy wire | 24 - stabilizer ring |
| 25 - stabilizer tray | 26 - band |
| 27 - band crimp | 28 - strap for joining stabilizer to handle |
| 29 - deployment spring | 30 - stop ring |

The second safety ensures safety at the moment the grenade is thrown and is disabled automatically in flight. It cannot be dismantled.

The third safety—the safety spring of the striker mechanism—blocks forward movement of the striker body during the grenade's flight.

The **stabilizer** (Figure 6) directs the flight of the grenade so as to present the bottom to the target. It consists of a cloth sleeve, guy wires, a ring, and tray.

15. The **simulation fuse** (Figure 7) imitates the sound and smoke effect of the detonation of a service grenade. It consists of the case, igniter primer, smoke powder charge, and wads.

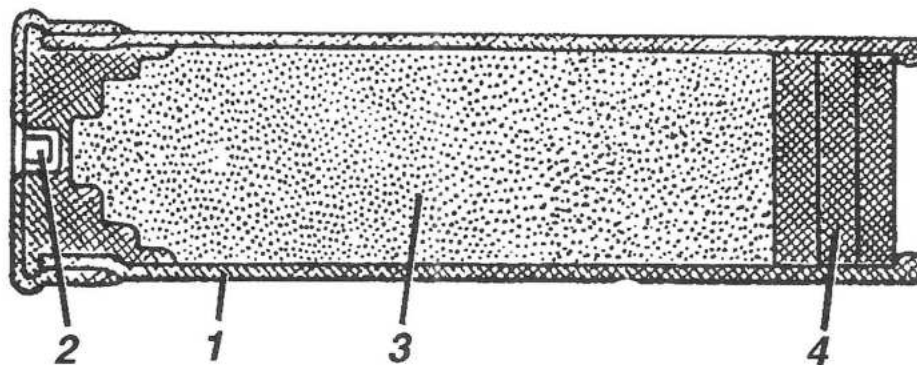


Figure 7. Simulation fuse:

- | | |
|------------------------|--------------------|
| 1 - paper case | 2 - igniter primer |
| 3- smoke powder charge | 4 - wad(s) |

16. All components of the training grenade, except the simulation fuse, can be used over again.

Function of components and mechanisms of UPG-8 grenade during throwing

17. After the safety pin is pulled out and the grenade is thrown, the flexible strip separates from the handle, the stabilizer is pulled out, and the second safety is disabled (the striker mechanism is made capable of functioning).

When the grenade strikes an object, the body and head of the striker, under the impulse of their own inertia and the inertial weight, move forward, compressing the safety spring (the third safety is disabled). The striker point dents the igniter primer of the fuse, and the flame from the primer is transferred to the powder charge, the burning of which is accompanied by sound and smoke effects.

Preparation of the UPG-8 training-simulation antitank grenade for throwing; methods and instructions for throwing

18. Observe the instructions that pertain to the RKG-3 service grenade when handling and throwing the training antitank grenade.

19. For repeated throwing of the grenade, assemble the handle mechanism, remove the expended case from the barrel, and install a new fuse.

Assemble the handle without removing it from the grenade body in the following sequence:

- gather all four guy wires together with the thumb and middle finger;
- tightly wrap the stabilizer around the gathered guy wires, beginning at the handle end;

- insert the wrapped stabilizer in the tray and insert them into the handle body;
- push the tray as far into the handle as it will go, pick up the fork from the accessories and position it on the handle butt end so that the slot of the fork is aligned with the handle guide, and the short ends are behind the collar (Figure 8);
- install the bent end of the deploying strip in the hole of the handle butt end and, pressing the deploying strip to the handle, install the safety pin in its hole;
- unscrew the handle from the grenade body and check the condition and opening for the striker point; it should not be dulled nor extend beyond the forward plane of the stop bushing.

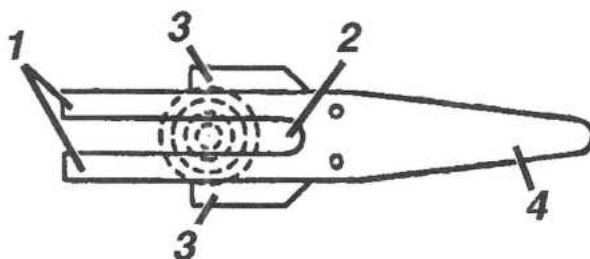


Figure 8. Position of fork on handle butt end:

- | | |
|----------------|-----------------|
| 1 - long ends | 2 - notch |
| 3 - short ends | 4 - tapered end |

To replace the point, it is necessary to remove the stop bushing, loosen the mounting screw with a screwdriver, remove the point, install a new point, tighten the screw, and install the stop bushing.

If the point extends beyond the stop bushing, it is necessary to remove it from the handle, insert it in the opposite end of the handle, and seat the striker until a click is felt. Install the stop bushing. If after this the point appears again, remove the stop bushing, unscrew the striker mechanism 3 to 4 turns, tighten it to stop again, and seat the striker until the click is felt. If you do not feel the click, check the assembly of the striker mechanism.

Before screwing the handle onto the body, remove the expended cardboard case from the barrel using the accessory tool and install a new simulation fuse in its place.

20. In the event of an unexpended fuse after throwing a grenade, without lifting the grenade from the ground, unscrew the handle and inspect the igniter primer. If the primer is dented, replace the fuse.

If the primer is not dented, check the correctness of the assembly of the striker mechanism and clean the grenade.

21. Grenade cleaning is accomplished in the following sequence:

- unscrew the handle from the grenade body;
- wash the body, remove the residue and dirt from the barrel and its lateral holes;
- disassemble the handle and wipe off the mechanisms. Remove the stop ring with the help of the screwdriver and the bent end of the fork. Remove the stabilizer with second safety and deployment spring. Remove the stop bushing, loosen the stop screw and remove the point. Unscrew the threaded bushing and remove the inertial weight. Disassemble the striker mechanism (insert the key in the recess of the striker body, and with the screwdriver through the central opening, unscrew the counterscrew 2 to 3 turns. Then unscrew the striker head and remove the threaded bushing with spring from the striker body, taking care not to lose the balls), remove the safety spring, and unscrew the counterscrew, rotating it clockwise. Clean all the parts and assemble the grenade.

Assemble the grenade in the following sequence:

- place the deployment spring and the second safety in the body, and install the stop ring;
- fold up the stabilizer and place the gathered stabilizer with tray in the handle body; connect the deploying strip and install the safety pin, ensuring that the bent end of the strip is in the hole of the handle butt end;
- assemble the striker mechanism; using the screwdriver inserted in the central hole of the striker body, screw in the counterscrew (rotate counterclockwise);
- place the safety spring and striker body in the channel of the threaded bushing;
- insert the balls and press in on the strike body to stop;
- join the head of the striker with the striker body by screwing it on until it closes off the openings with balls on the striker body;
- insert the drift in the striker body and screw on the striker head to stop; the drift should not fall out by its own weight;
- back off the striker head one-half turn so that the drift falls free;
- fix the striker head in position relative to the body by screwing the counterscrew to stop on the striker head, while holding the striker head with the index finger, and the striker body with the thumb and middle finger;
- place the inertial weight in the handle body, putting it on the rod of the second safety;
- screw in the striker mechanism to stop;
- install the point and secure it with the stop screws;
- install the stop bushing.

Accessories for the UPG-8 grenade

22. When assembled, the accessories are used to clean the grenade, disassemble and assemble sub-components, and extract the simulation fuse casings.

The accessories (Figure 9) consist of a key-screwdriver, fork, and drift.

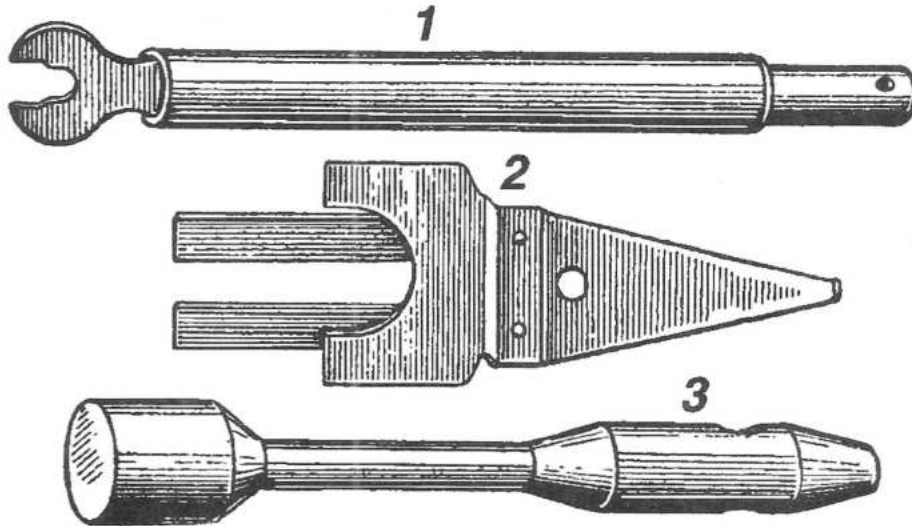


Figure 9. Accessories for grenade:

1 - key-screwdriver

2 - fork

3 - drift

The key is for unscrewing and screwing in the threaded bushing, and also the striker body. In addition, it is used for removing a bent point. To do so, unscrew the head of key until the opening in its shaft is fully open, then insert the protruding portion of the point in the opening, and squeeze it with the end of the tube by screwing the head back in.

The screwdriver is used for unscrewing and screwing in the stop screws and counterscrew, and also for monitoring the correctness of the assembly of the striker mechanism.

The fork is used for repeated assembly of the handle for packing of the stabilizer into the handle body.

The drift is used for removing dents on the handle body and setting the stabilizer trays.

Spare components for training-simulation grenades

23. Every URG-N (URG) grenade is issued with 100 simulation components and strikers, 10 striker mechanism pipettes with guide washer, release lever, and safety pins, and 2 safety rings.

24. Every UPG-8 grenade is issued with 50 points, 15 balls, 4 safety springs and stop screws, 2 counterscrews, 6 deploying strips and stop rings, 15 safety pins with rings, 10 stabilizers, and 20 stabilizer securing straps.

Weapons Safety

Hand grenades and Molotov cocktails are dangerous weapons. They are potentially lethal. No person may own or possess a functional, armed hand grenade without appropriate federal, state, and local permits and licenses. It is strongly recommended that all military explosive devices required for display, demonstration, training, collecting, or re-enactment purposes be deactivated by qualified experts, and that any explosive materials within the device, fuse, or primer be removed and legally and properly disposed of. It is strongly recommended that, if required for display or demonstration purposes, Molotov cocktails be assembled using inert, non-combustible liquids only.

WARNING: If a hand grenade, Molotov cocktail, or any explosive device is carelessly or improperly handled, unintentional detonation could result and could cause injury, death, or damage to property. Explosive materials, such as those contained within grenades, fuses, and primers, deteriorate over time and may become unstable. Such materials may explode spontaneously.

Collectors of hand grenades and other military explosive devices must exercise extreme caution in handling and transporting these weapons, even when the devices have been rendered inert. Your safety and the safety of others, including members of your family, depends on your understanding and mature compliance with applicable instruction manuals and your constant use of safe handling practices. If you are unfamiliar with military explosive devices, seek further advice from qualified experts.

WARNING: When you release the safety lever of or activate any grenade or Molotov cocktail, you must expect the grenade to explode or the Molotov cocktail to ignite, and you must take full responsibility for activating or igniting the device and the consequences. Your careful handling can avoid accidental discharge, and you can avoid accidental injury and death. Even after a military explosive device has been rendered inert, employ it for demonstration purposes only in a safe, controlled environment where its use and impact will not injure people or damage property. In other words, an inert hand grenade, when thrown, can still cause serious injury or death if it strikes a person, and can cause damage to property.

WARNING: Live military explosive devices may accidentally detonate at any time. This can occur regardless of the safety pin, lever, handle, or fuse positions. Unless you have personal knowledge that a specific military explosive device has been rendered inert by removal of explosive materials, primers, and fuses, always consider the device as live and dangerous.

Various federal, state, and local laws govern the transfer and transportation of explosive devices. If you do not know the applicable laws, consult a law enforcement official in your area prior to transferring or transporting any live military explosive device.

Russian Military Translations and Enterprise Desktop Publishing shall not be responsible for injury, death, or damage to property resulting from either intentional or unintentional discharge of any military explosive devices discussed in this historical reference manual.

This instruction manual is intended only as a historical reference document. It was originally published in Russian as two separate manuals by the People's Commissariat for Defense in 1944 and the Ministry of Defense of the Union of Soviet Socialist Republics Military Press in 1974 as instruction manuals for their military personnel on the use and maintenance of hand grenades and "Molotov cocktails." Although careful study of this translation could be potentially beneficial to anyone who legally owns such devices, this translation is not intended to be an owner's or operator's safety and instruction manual for Soviet hand grenades or Molotov cocktails.

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